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MANUAL

OF THE

Elementary Course of Study

FOR THE

Common Schools of Wisconsin.

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THIRTEENTH EDITION

C. P. CARY,
State Superintendent.

NOTE—*This Manual is designed not only for the present, but also for the future use of the common schools. The teachers of these schools, and the clerks of the district boards, who may receive copies, should preserve them.*

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GENERAL SUGGESTIONS.

The numerous tasks facing the rural school teacher from day to day, make it difficult if not impossible for her to become a master of all the details of her daily work. Attention is called here to some of the larger things which she may do with reasonable success, and which if mastered, will go a long way toward eliminating the smaller difficulties.

1. *Distinguish between the memoriter and the rational studies.* Rural school teachers waste much time by their failure to distinguish between drill studies and rational studies. Drill studies are branches that aim to secure as a result certain definite mechanical execution. Such branches need little discussion. Practice is the road to success. The cardinal drill studies are spelling, writing, and the parts of arithmetic which have to do with skill in computation. Constant repetition under right conditions is the sure means by which good spellers, good writers and rapid calculators are developed. Teachers should make up their minds to this and drill for results.

On the other hand much time is wasted and the mental powers deadened because repetition is demanded in branches where reason should rule. This fault is illustrated in the teaching of History, Reading and Geography, especially in the Upper Form. Memoriter repetition of the text in history is of little value. The student should be held to a rational statement of the substance of the lesson and should be obliged to prove his understanding of it so far as possible.

The teacher should classify the branches to be taught into the memoriter and the rational. She should likewise discriminate in each branch between the mechanical parts and the ra-

tional parts. The rational parts should be discussed pro and con. The mechanical parts should receive a sufficient amount of drill to insure accuracy and rapidity.

2. *Teach the pupils how to study.*

The teacher should investigate the pupils' methods of study, that is to say, should find out what they *do* when they study. To do this, she should observe the results given back in recitation; she should ask questions in class that will reveal not merely what they have learned, but how they have learned. She should supplement the knowledge thus gained by observing their methods of work at their seats.

Along with this process the teacher should teach pupils how to study to better advantage; this she should do consciously and persistently. She should make pupils conscious of the way questions, outlines, notes, etc., help them to learn and to think. She should show them how to read, how and when to ask questions of themselves as they read. She should show them how *she* would study the lesson, or she may at times study it with them with the purpose in mind to help them to help themselves in the lessons that follow. Following this she should make them aware that she is testing their power in this direction, testing them to discover for herself how much they have gained in self help from her help.

Drills and reviews, in class, upon the fundamental facts, rules and processes of a study raise the pupils' ideals of attainment and should stimulate them to drill and review by themselves.

In the rational phases of any study, questions asked by the teacher in class, which call for causes or effects, reasons or relations and which compel pupils to think out in terms of their own experiences or back to what has gone before in the book, should be brought to the consciousness of the children in a way to get them into the habit of thinking in a similar manner for themselves as they study.

Merely to question pupils in order to test them and to mark down the result, merely to help them when they fail and then

to help them again and again engenders dependence. Such work does not develop in them initiative or the power of self help unless it is carefully planned to *help them help themselves*, and unless pupils are conscious that the assistance given is given for that purpose. Simply to question for reasons and relations may not teach pupils to think for themselves; rather it may develop a habit of thinking *only when stimulated to think*. The teacher must stimulate pupils to ask themselves and then to answer such questions, and must show them how such questions arise out of the very nature of the study.

3. *Make careful assignments of lessons, and make the recitation a vigorous and thorough exercise.*

Growth in the power to study depends much upon assignments. Occasionally in all studies carefully prepared assignments in much detail should be make in order to show pupils how to plan their work for themselves. As a rule, however, the assignment need not be elaborate or long drawn out, but it should be explicit and discriminating and adapted to the length of the study period, and to the ability of the pupils. It should be so explicit that no pupil can truthfully say, "I did not know what we were to do." It should be discriminating so that pupils may use their time to the best advantage in mastering the essentials of the lesson.

To repeat, the three tests of every assignment are:

1. Is it explicit?
2. Is it discriminating?
3. Is it adapted to the student's time for preparation, and his present ability and needs?

That there is a distressing lack of intelligent study and recitation in a large proportion of our rural schools is the one uniform report that is made by competent inspectors. There is a lack of thought, lack of understanding or comprehension, lack of grasp of the meaning of the lessons "learned" and "recited."

It has been stated by inspectors that it is rare to hear in rural schools such questions and directions as the following: "What does this mean?" "Why?" "Give an example." "Ex-

plain." "Did you ever see anything like this you have just read about?" Without the discriminating and appropriate use of such questions, the pupils are not led to relate the facts contained in their lessons, or to grasp principles, and the result is not knowledge or power, but the deadening of all school interest and the atrophy of all native faculties of the mind. The child grows only through his own self activity. Neither the question nor the teacher's manner should imply the answer. Every pupil in the class should give careful attention to all that is said during the recitation.

4. *Reduce the number of daily recitations to the minimum.*

It is difficult to give suggestions that will apply in all cases. The teacher must study the situation and proceed in the manner that she thinks will best apply to her school.

Geography classes may often be combined to advantage. Two small classes in written arithmetic may be called at the same time even when the work is widely separated. The teacher can give one section work at the board while she questions the other section, and *vice versa.*

Often spelling classes may be combined. It will of course suggest itself to the teacher to have all pupils work together in such subjects as writing, drawing, nature study and singing.

The more advanced pupils in crowded schools need not recite every day of the week in every study they are pursuing. Note the suggestions on classification and program elsewhere given in this manual.

5. *See to the heating and ventilation.*

Teachers will find very few of the country school houses equipped with anything that approaches an ideal system of heating and ventilation. Nearly all are heated with stoves and have no means of letting foul air out, or fresh air into the room except by windows and doors.

The best of judgment, therefore, needs to be exercised by the teacher in order that the school-room may be kept properly heated and ventilated.

The school board should be induced if possible to provide a

jacket for the stove if it is not already supplied with one. This jacket should be of heavy galvanized iron, should be placed several inches from the stove, should entirely surround the stove, should be open at the top, should extend to the floor, should have a hinged door somewhat larger than the one in the stove and opening directly in front of the door in the stove and should have near the bottom a number of large holes that can be opened and closed at will. The jacket should extend above the stove a number of inches—a foot at least. An air shaft at least twenty inches square should be so placed as to communicate with the outside air and with an opening beneath the stove. A heavy wire screen should be placed over the outer end of this air shaft and the shaft should be provided with a damper so that the outside air can be shut off during the process of heating the room in the morning, but care must be taken to open the holes in the jacket above referred to whenever the damper in the air shaft is closed, otherwise the intense heat may result in serious damage. When a jacket is thus used a foul air pipe should be placed in the chimney with a grate opening into it through the mopboard near the floor. The heat in the chimney heats the air in the foul air pipe, causing it to rise. This creates a draft, by means of which the foul air of the room is carried off. If the teacher and the county superintendent will take pains to explain to the school board the necessity for some means of ventilation it is probable that in a great many cases favorable action may be secured.

When nothing better can be done the teacher must ventilate by means of windows and doors. In such cases the utmost care should be exercised in order to prevent direct draft from striking the children. Windows should always be opened on the side opposite that from which the wind blows, and should not in cold weather or when the children are perspiring from exercise, ever be opened on both sides at once. Probably the safest and most practical way to ventilate with windows is to place a board from four to six inches wide under the bottom of the window. This will prevent any direct draft and will allow the air to pass up between the sashes and circulate through

the room. A reliable thermometer should be placed in every school-room and the temperature should be kept at from 68 to 70 degrees. The temperature and ventilation of the room are matters that should never be neglected by the teacher.

6. *Outbuildings.*

There should be separate outbuildings for both boys and girls, and they should be placed on opposite sides of the grounds. They should have good doors, and should be provided with strong lock and should be kept locked at night. They should be stormproof, so that rain and snow may be kept out. They should be scrubbed frequently and should always be neat, and free from obscene writing, pictures and drawings.

7. *Lighting, Seating, Decoration.*

Most school buildings are poorly lighted. To determine whether there is sufficient window space or not, the teacher may calculate the number of square feet of floor surface by multiplying the length and breadth of the room together, then find the total area of window surface and divide the former by the latter. If the quotient is *five* or less there is enough window surface, but if the quotient should prove to be seven or more there is not enough window surface. However, teachers are often careless and allow the windows to be covered by window-curtains in part, at least, when such covering is not needed for the purpose of shutting out the direct rays of the sun. Pupils should never be allowed to face the windows while studying. A mistake is often made in arranging the seats, the common method being to place the largest seat in the back of the room, then the next smaller and so on down to the smallest size. Such an arrangement makes it necessary for many pupils to be seated upon a seat that is relatively too high for the desk in front. Pupils are thus required to bend forward over their work to a degree that is a menace to health. The vital organs are compressed unduly, and the shoulders stooped. A much better way is to arrange the largest seats in the outside rows, or rows next to the walls. Then the smaller seats in the

next row and so on toward the middle of the room. Much more attention should be given than usually is to the matter of decoration of the school room. Space forbids the attempt to give specific directions as to decoration but the teacher should first of all clear out all of the old rubbish that has accumulated in the way of advertising chromos and the like, should clean the walls thoroughly and then put up such decoration as may be available for the purpose. It is far better, however, to have the room severely plain than to have the walls covered with unsightly dust-gathering material.

Attention should also be given to the school grounds with a view to their improvement. Teachers who are interested will usually find ways and means of temporary, if not permanent, improvement.

8. *Discipline and Management.*

The ideal school is an earnest, cheerful, hard-working community, without any serious internal strife or discord. To bring about and maintain such a condition the community, the school board, the teacher and the pupils must all work in harmony to the end that the school may accomplish its proper work of developing character, training and developing intelligence, and giving skill in using the knowledge that is of most value in every day life and in further acquisition of knowledge.

The teacher's fitness for her work is shown in the tact and ability with which she organizes the various elements to which reference has been made and secures the hearty co-operation of all. The school room should at all times be quiet and orderly—not a death-like stillness, but the quiet that results from strict attention to business.

The suggestions given above are all so evident and so commonplace that the careless teacher may pass over them in a thoughtless manner. But if the teacher will ponder over the suggestions from time to time, test her own work in its details by them, and seriously strive to improve her school and its environment, the results will tell. It is needless to say that no effort has been made to exhaust the subject of rural school

pedagogy. On the other hand the effort has been made to point out a few of the more obvious weak spots in rural school work.

SCOPE OF THE COURSE OF STUDY.

This course is based on the requirement of the law that certain branches shall be taught in the public schools. Section 447, of the Revised Statutes, contains this provision: "Orthography, Orthoepy, Reading, Writing, Grammar, Geography, Elements of Agriculture, Arithmetic, the Constitution of the United States, and the Constitution of this state, shall be taught in every district school, and such other branches as the board may determine." Section 447*a*, requires that provision shall be made by the proper local school authorities for instructing "all pupils in all schools supported by public money or under state control, in physiology and hygiene with special reference to the effects of stimulants and narcotics upon the human system." Instruction in drawing and vocal music is made optional for two reasons: first, the law does not specially provide that these studies shall be taught in public schools; second, the majority of the teachers in elementary schools are not yet qualified to teach them. Still, it is urged that regular exercises in these branches should be conducted whenever the district board is willing, the teacher is competent, and the ordinary work of the school will not be impaired thereby. *It is recommended that oral lessons in morals and manners and in the elements of some of the natural sciences be presented in the general exercises throughout the course, whenever this can be done to the advantage of the pupils.*

The attempt made is to adapt the instruction in the various branches to the needs of the pupils in attendance upon the district schools and to the general conditions under which these schools are organized and managed. There is kept constantly in mind the effort of the past few years in teachers' institutes and normal schools to furnish a clear understanding of the elementary studies, and of suitable methods for teaching the different subjects. Without doubt the state will depend upon these agencies for the same service for several years to come.

A period of nine years is usually required for a child in rural schools to gain a fair knowledge of the common branches. The brighter pupils may accomplish this work in less time, while the others will be occupied for a longer period. A very large percentage of the children in the state receive, before they reach sixteen years of age, all the culture which they ever obtain in the schools. The plan herein adopted is to group the studies of the course into large divisions, each of which can be mastered by the pupils in three years, on an average. It would not be desirable, if it were possible, to draw an arbitrary line separating with precision all the work suitable for primary pupils from that of an intermediate grade. It is believed, however, that a reasonable and practical division is made herein, that will serve as a general guide, though in individual cases some departures from these lines may be found profitable. On this classification the pupils in the country schools can be divided according to the studies which they are pursuing, into three groups, designated as PRIMARY, MIDDLE and UPPER FORM.

The principal idea of the course is to grade the work of each pupil to a proportionate advance in each of the branches composing a Form; the subordinate idea is to grade the school into three sections, each representing but one form. In other words a "Form" is a body of related work, and is not a group of pupils. It is not the purpose of this gradation to regulate one pupil's progress by that of another, but to require each pupil to make equal progress in all the branches. The course shows how much geography or language a boy should know when he has acquired a certain knowledge of arithmetic. It must be borne in mind that as each Form comprises several classes, all pupils of a Form may neither enter nor leave it at one time. The promotion of each pupil will depend upon his ability, industry and regularity of attendance. At the same time, the skillful teacher will be able to preserve reasonable uniformity in the progress of all the pupils and to maintain proper classification. In response to request some effort has been made to indicate work by years.

READING.

I. Fundamental things for teachers to consider.

1. *The child's mental equipment for school.*

When a child enters school he has a store of ideas, and a vocabulary by means of which he expresses his ideas, and understands to a limited extent the spoken language of others. The amount of these mental possessions depends chiefly upon the child's surroundings,—that is upon his parents, his associates, his home and its natural situation, all included under the word environment.

References: King: Psychology of Child Development, Ch. XVI.

Carpenter, Baker and Scott: The Teaching of English, pp. 64–65.

Parker: Talks on Pedagogics, p. 16–17; 185.

Arnold: Reading: How to Teach It, pp. 58–61.

2. *The child's hearing and speaking-vocabulary.*

It has been estimated that the average child of six years is able to use from six hundred to eight hundred words,—his speaking vocabulary; and is able to understand when heard four or five times as many,—his hearing vocabulary. He has learned, when he enters school, more of language than he ever again can learn in the same time. It may be well to stop and inquire how it was done. Can we get at the secret of the success of the natural home process? And can the school use the same or similar methods?

Parker: Talks on Pedagogics, p. 312.

3. *First, how did he get his hearing-vocabulary?*

The child begins to hear language long before he begins to speak. His hearing vocabulary, referred to in 2, he learned naturally, which means that he learned it according to the fundamental law of his mental action. The mother was acting in conformity with this law, (law of contiguity) when, putting a spoon into the child's hand, she spoke the word "spoon." The seeing and the feeling of the spoon, (the starting points of the idea), and the *name*, heard in connection with these sensations, became associated in the child's mind. Repetitions of this experience finally made the association permanent so that one form of activity suggested the other: that is, either the memory image of the spoon or the sight of it, called up or suggested the spoken word; and the spoken word suggested the idea. Now the word has come to perform its function; it calls up its appropriate activity,—it is the "sign of the idea." In this way before he entered school, was the entire hearing-vocabulary of the child built up, and in this way will it continue to grow. All words, if of any value to the child, must be learned in connection with the objects for which they stand.

Hinsdale: Teaching the Language Arts, Ch. VI.

Tracy: Psychology of Childhood, Ch. V.

Parker: Talks on Pedagogics, p. 180–185.

4. *Second, how did he get his speaking-vocabulary?*

Acting according to his instinct to imitate those around him, he learned by repeated efforts to make his organs of speech say the words. He will learn to say words as he has heard them; he will form good habits of language or bad, according as he hears it in the home and among his associates. Whether good or bad, these habits of language like all early impressions are strong, it being well nigh impossible later in life, even under the best teaching, wholly to eradicate them.

Hinsdale: Teaching the Language Arts, p. 39.

Carpenter, Baker and Scott: The Teaching of English, pp. 112, 113, 114.

5. *What the school is to do.*

It will now be understood what is meant by saying that when a child enters school he knows certain words in two ways: he has the auditory image and the vocal-image of these words, and both are associated with ideas, so that through these words, he both understands and expresses thought. The school must teach him to know these words in two other ways, by means of which he may have another way of getting and another way of expressing thought. The eye must now share with the ear, the work of thought-getting and the hand share with the mouth, the work of thought-expressing. He must learn to read and write.

Salisbury: The Theory of Teaching, pp. 103–107.

Titchener: Primer of Psychology, Ch. VII.

6. *Learning to read compared with learning to hear language.*

In teaching the child to read, the same method may be employed that the parent used in helping him to get his hearing vocabulary. (Sec. 3.) The parent did not begin to teach the child to hear language by dividing the oral word into its component parts; so the teacher need not begin to teach the child to read the language by dividing the written word into its component parts. The child does not need to "know his letters" in order to learn to read. The teacher starts with some familiar thought or idea which the child can and has expressed in oral language, and lets him see the same expressed in clear script upon the board. Repetitions of the association of words and their meaning finally make the association permanent so that at the sight of the words, their appropriate activities are called up. The written word has become the "sign of an idea." The child has begun to read.

Hinsdale: Teaching the Language Arts, pp. 88-90.

7. *Learning to write compared with learning to speak.*

In teaching the child to write, as in teaching him to speak, (Sec. 4), imitation does its work. By repeated efforts he learns to coordinate his muscles to make the letter-forms he sees.

Fortunate is the child who sees from the start good writing. Good writing for children is large, round, vertical or semi-vertical, and near to print in appearance.

Chubb: The Teaching of English, p. 73.

Carpenter, Baker and Scott: The Teaching of English, p, 117.

8. *The importance of attention.*

In learning words in the four ways already mentioned there is one condition that always determines the ease and readiness with which the different associations are fixed in the memory. This condition is the degree of attention. The greater the attention the fewer the repetitions needed to fix an association. Hence in teaching, the attention of the pupil is the first thing to strive for.

Parker: Talks on Pedagogics, Ch. VI.

Titchener: Primer of Psychology, Ch. V.

9. *Relation of interest and attention.*

Attention is bound up with interest. The thing that the child attends to is the thing that directly interests him. The interesting thing is the thing that attracts the attention. When one of these appears the other appears with it,—they are the two sides of one experience.

Titchener: Primer of Psychology, pp. 81, 82.

Salisbury: The Theory of Teaching, Chap. XVI.

10. *The dominant interest of children.*

Interest in activity of some kind is the predominant interest of children. Varied and continual activity, mental and physical, has characterized the first wonderful six years of his life. Activity must continue after he enters school, or stupidity will result. It is the business of the teacher to so direct the child's activities, that through them he is interested, and therefore attends to the matters which the school has for its especial ends, among which teaching the child to read is of first importance.

Parker: Talks on Pedagogics, pp. 20–24.

II. Beginning Reading.

11. *General description of good method.*

The teacher who has clearly realized the full meaning of these fundamental points has made some progress in learning how to teach reading. All methods of teaching reading are good that recognize from the start the important truth that teaching reading is teaching children to get thought from written or printed sentences; and to give this thought to others. Methods have been successful in their operation, when they have established in children the habit of looking through words to the ideas back of them, and of not being satisfied unless the sentences yield some thought to them; and, further, of never thinking they can read orally, that is, attempt to give the thought of the written or printed sentence to others, till they, themselves, have the thought to give.

12. *The needs of foreign-speaking children.*

Many of the children who must be taught to read English in the schools of Wisconsin, come to school understanding and using only a foreign language or but little English. Before they can be taught to *read* English, they must be taught to *talk* English,—at least enough English to understand the sentences which the teacher is to make the basis of her first work in reading. Foreign-speaking children easily form associations between the words as pronounced by the teacher and their written or printed form, and are allowed to call words from the book, and think they are reading. They too, must be made to understand from the first that reading is getting thought. The method is practically the same for all children, English-speaking or foreign-speaking. The chief difference in the treatment of these two classes is the much greater amount of preliminary language work needed by the latter to prepare him for the reading.

13. *Oral expression the basis of reading.*

It cannot be too strongly emphasized that all reading for beginners must be based upon oral expression. There should

be much practice in free expression preparatory to the reading. There is a variety of interests which the teacher may use to stimulate children to talk. Several of them are mentioned here, in order that teachers may choose those best suited to their need; also to suggest ways of changing method and thus preventing monotony. Reading matter based on oral language may be secured by means of:—

a) Conversations, which should relate to the home life of the child, such as his pets, the animals he knows, etc. A reading lesson coming from such an exercise might be about some one's dog "Jack". Each child repeats something which Jack's master says he could do, until the teacher has from four to six statements on the board. Jack can jump. Jack can play.

Each child repeats his own statement pointing to the line which belongs to him. Teacher erases the last word of each statement and supplies another as given by some pupil. Finally all last words are erased leaving only "Jack can" which becomes the basis for the next lesson. The words "Jack" and "can" are placed in the vocabulary list for memorizing and review drill. (See course for first year.)

b) Stories commonly known by children and loved by them, such as the "Three Pigs", or "Jack and the Beanstalk." From the oral expression of the story by the child, short statements are selected for the board. This is better for English-speaking than for foreign-speaking children as is the following:

c) Mother goose jingles, such as, "I had a little pony." "Rock-a-by, baby."

d) Collection of interesting things, as toys, bright objects, fruit, etc. Out of play with these and the resulting conversation, sentences for the board are formed. The idioms "I see", "She sees", "He sees", "That is", "I have", "We have" may be taught from these, and a great variety of sentences built up. This is the best way to begin with foreign-speaking children.

e) Directions and commands. These may need for their execution a collection of objects. The directions are at first given

by the children to one another, and later are given by the chalk. This way of using directed activity as a means to teach reading is described more fully in 15. It can be used with foreign-speaking children, and is very helpful in teaching them to understand English. If this method is followed to the exclusion of the others, the pupil is deprived of experience with sentences arranged in logical order, which he needs before taking up the book, and which is given by using the means suggested in *a*, *b*, and *c*.

f) Pictures. The examination and discussion of the picture, becomes the source of the sentences used for the reading lesson.

14. *Simple apparatus and its great value.*

The apparatus needed to teach reading, other than that mentioned in 13, is as follows:

a) A blackboard. The first reading is entirely done from words and sentences *written upon the blackboard* by the teacher as they are spoken by the children. There is no need of the teacher printing words or sentences; the child can just as easily learn to read writing as printing.

b) Manila paper. This paper of postal-card weight can be bought of any dealer at five cents a square yard; a heavier quality costs eight cents a square yard.

c) A shading pen, or a black crayon for making letters with broad strokes that may be seen across the room. (Get black "Standard Checking" crayon, No. 31.)

d) Colored crayon for teacher's blackboard illustrations.

e) A common window shade with a spring roller. This is to be fastened to wood work above the blackboard, and used to cover lessons written on board for sight reading.

f) Directions.

(1) A square yard of manila paper will cut most economically into strips 18 inches by 3½ inches and will make twenty strips of this size. These are to contain the sentences as fast as they begin to be known by the pupils. The sentences should

be written with the shading pen, or black crayon, the teacher taking great pains to make her writing simple, round, and free from all flourishes or useless lines. (Find a good copy in some system of vertical or semi-vertical writing books, and follow it faithfully.) If a larger hand writing is wanted than that suited to strips of the size named, cut the strips 28 inches by 4½ inches.

(2) Cut some of the manila board into cards, 7 inches by 4½ inches. It will be seen that one square yard will make forty such cards. Upon these the words which pupils have had in their reading and which the teacher desires to have retained in memory, are to be written, that they may always be ready for review.

(3) Others of the cards can be used for the phonograms, as the child learns them. (By the word phonogram is meant any representation of a sound, either simple, as *f*, or compound, as *ight*.)

(4) If any pieces are left, they can be cut into small cards about 1 by ½ inch. These are for sentence building by the pupils at their seats. The quickest and best way to make these small cards is this: Take a piece of manila board, and mark it off with a pencil into spaces 1 by ½ inch. In the spaces write with pen and ink the words as they are learned. Make at least as many duplicates of this sheet as you have pupils. Cut up the sheets. Put each full set of words, with a number of duplicates, into an envelope or a spool box, upon which you have written the child's name. Add to these sets as the list grows. Words that begin with capitals in the sentences given on the blackboard, or strips, should appear in the same form on the cards. The word with the small initial letter (if it is not a proper noun) can be given later.

(5) This outfit of cards, material for which can be bought for a quarter of a dollar, is of greater value to the teacher of reading than the most expensive chart. Since the teacher can change the order in which the words and sentences are to appear, children soon see that they must be alert and attentive. Reading from the cards requires a real discrimination of word forms, not a memorized association of words with pictures, or of words in a fixed series.

15. *Description of method of starting children in reading.* (See e in section 13.)

a) The teacher finds out by conversing with them something of the experiences and interests of her primary class, and endeavors in every way possible to put them in a responsive attitude towards her.

b) She selects some simple act as tossing a ball, and she and her class engage in the game. Each child takes his turn at giving the command to the others: "Toss the ball."

c) "Now the chalk will have its turn in telling you what to do." While all eyes are watching her hand, the teacher writes rapidly in large, round script, "Toss the ball."

d) She writes the sentence several times telling them to watch how her hand does it. She calls on different children to do what the sentence says.

e) In the next exercise she bounds the ball and writes as before. Powers of discrimination begin to be exercised. She helps by calling attention to the words "Bound" and "Toss" and showing difference in the way they are made.

f) In a following exercise the pupils find the ball on the desk. The teacher writes one of the sentences already given and asks, "Who can do what the sentence tells you to do?" When in this or some future exercise a child steps to the desk and gets the ball and performs the act called for, *he has read the sentence.* She writes the other sentence and has the act performed. Erases and repeats.

g) Other objects are introduced and other sentences follow, as, "Open the umbrella," "Close the umbrella," "Open the red box," "Open the black box," etc. In selecting the nouns for this stage of the work, care should be taken to avoid those that are similar in form, so that too close discrimination will not be demanded. The same words are used in different sentences.

h) As soon as the children are ready for it, the teacher will have them use their seat period in sentence building with the word cards. She will give each child several cards, containing the words already used, as "Toss" and "Bound" and the phrase "the ball," telling them to go to their seats and try to put them together to look like the sentences on the board. Section 14.

i) As the children begin to show some power in the reading of the sentences, the teacher will write them upon the strips. (Sec. 14.) The drill exercise now consists in showing the class these sentences one after the other in ever varying order, and calling upon the children to do what is called for.

j) Although many exercises are given in which the children read the sentences without speaking the words, they should sometimes be called upon to tell what familiar sentences say —that is to read orally. The expression will probably be natural.

k) The names of the children are early introduced, and used in this way and any other that may be suggested: Teacher,— "This child," (writing the name Charlie) "may do this," (writing, "wave the flag.") Their names, as perfectly written as possible should be placed on a large sheet of paper, hung where the children can see it.

l) The declarative form of the sentence may be introduced, using the same nouns; as, "I have the flag," "I see the flag." The idioms "I have," "I see," and "I can," furnish the foundation of many sentences, as do those introducing the other pronoun as "He has," "He can," "He sees," etc. This form of sentence can be made more interesting, and as a thorough test of

real reading as the imperative by the use of the simple device of "making them true."

Illustration: Teacher writes the sentence "I have the penny," and asks some one to make it true. The child who can read the sentence will take the penny from the collection of objects,—a test that he is able to get thought from the written words. If the teacher writes the sentence, "The apple is on the desk," the child shows that he has read it by putting the apple on the desk. If the phonic exercises suggested in 20 are going on, the words selected for the reading should contain as many as possible of the phonograms being drilled on there.

m) While this work with sentences has been going on, the teacher has called the child's attention frequently to words. The sentence building out of the word-cards has also interested the pupils in words. As soon as children have discovered that sentences are made up of words, which they can be brought to do in a week or two, then *words become objects of attention.* Now word drills are part of the daily exercise. The words are shown for a moment, and pronounced by pupils in succession. The child has now a motive for learning words, because he readily sees that the more words he knows the more sentences he can read; and the more he can read, the more he can do: and activity of some sort is his greatest desire. The word method has now joined hands with the sentence method to work for the child's progress. The words *the*, *a* and *an* should not be taught as separate words, but always in connection with the words which they modify, and pronounced as the unaccented syllable of that word, *a ball*, *the flag*, *an apple.*

n) While this has been going on, another purpose of the teacher has begun to operate. She has begun in a natural, easy way to train the ears of her pupils to hear the elementary sounds in words. For instance, she may spell by sound, the names of objects, and ask the child to find them. She may spell the names of the children of whom the requests are made, as "J-a-m-s (giving the sounds of the word, somewhat separated) may close the door." She has them think about the sounds that words begin with, asking, "What sound does the name of

this begin with?" pointing to an object; or, pointing to the written word on the board, "What sound does this word begin with?" "What sound does you name begin with?" All this is done to lead children to understand that spoken words are made up of sounds, and that the letters in the written words stand for these sounds. As soon as this is understood, then the sounds of the letters become objects of attention. (Sections 20 and 24, also First year *d.*) The pupil now has a motive for learning the sounds, because he sees that by knowing "what letters say," he can make out words better, and knowing words he can read sentences. The phonic method has now joined hands with the other two, making a strong trio to aid the child in the mastery of this all-important art. As soon as the pupil has found out that he can do things, a stimulus is afforded that results in a great strengthening of application, concentration and self-control.

o) Summary of the practical advantages of this method.

(1) The pupils begin to read at once, and thus time is saved.

(2) From the very start, reading means what it should, the getting of thought, not the calling of words. Right habit is begun.

(3) They have been started rightly in oral reading; for they have been obliged to get the thought of the whole sentence before being allowed to say it.

(4) Right habits of expression are started; for since the thought is clearly understood and felt the oral reading will be natural and easy.

(5) They have had some practice in taking in a number of words at a glance, which power, developed further, will help to make them fluent readers.

(6) They have begun the mastery of phonics which is the means to self-help in getting new words.

16. *Time needed for the work just described.*

The time needed for all this will, of course, vary with the maturity and general ability of the children, and with the skill

of the teachers. Children can profitably do all their reading from the blackboard and the cards for a period of from two to four months, according to the maturity of the pupil. Primary teachers advise keeping children at this work until they can execute the commands or "make true" the statements written on twenty-five cards, the oral reading of the same following as a natural consequence. Since they will also know separately the elements of these twenty-five sentences, they can in the same time learn to read from the blackboard many more sentences containing the same elements arranged differently. For example: The sentence on the card is, "The red box is on the table". In another is the phrase, "on the chair". A variation for blackboard drill would be the sentence, "the red box is on the chair." Variety of treatment is a strong factor in securing and retaining interest, and a teacher would do well to try all the means suggested in 13. Some work calling for the orderly arrangement of sentences, as the story or description of a pet should be given in preparation for the book.

17. *Preparation for the book.*

Before reading from a book can be profitably introduced, the pupil must be able to speak in clear, intelligible English. It is hoped that when ready for the book, all pupils may have the inviting prospect of a good one. There is really, in a majority of cases, no valid excuse for anything else. Readers abound, beautiful in their general makeup, and filled with pictures and reading matter, adapted to children's interests. The cost of one of these attractive new books is so little that any parent who stops to consider the question would not deny his child the benefit which would come from such a possession so cheaply bought.

When such a reader is in prospect, the teacher will shape her preliminary work so as to prepare her pupils for using it. The words and sentences occurring on the first pages should be introduced for blackboard reading and drill along with the others. When this is done the transition to the print from

the script form of sentences already familiar, will be readily made, and progress in the book be more rapid and satisfactory.

The phonic work also, should have been planned somewhat towards his needs in getting the first words of the book; or, if the book has a carefully worked out system of its own, the preliminary work should have started the pupils in the mastery of that system.

18. *The transition from script to print.*

If the teacher's writing has been what a primary teacher's should be, the transition from script to print will not be difficult; for the script letters free from flourishes and all unnecessary lines, are so nearly like print that the children, knowing the former, soon learn the latter. When the time comes for the pupil to read from a book, the teacher writes the words or sentences on the board in the familiar form, arranging them as they are in the book. The pupil reads the sentence on the board and then compares the sentence in the book with it, word for word. He is asked to tell what the sentence on the board says and then that the sentence in the book says the same thing. It will be necessary to put the entire lesson on the board only a few times. After that, only parts of sentences will be troublesome, or, occasionally, whole sentences, which should then be written on the board and worked out by the use of phonics.

19. *The pointing habit.*

The pupil should not be allowed to point to the words as he reads. He should do as the method described will start him in doing; that is, take in the sentence at a glance and then give the thought. Teachers are sometimes seen pointing to the words of the book or words on the blackboard one after the other and having the child call them in succession, also allowing pupils to do the same with finger or pointer. While the child may use his finger to guide his eye while he is studying the sentence to get the thought, when the time for oral reading comes, he is to give the thought, smoothly and naturally, and

not merely call the words separately. This does not refer to pointing in drill exercises upon lists of words.

20. *The use of phonics.*

If the suggestions made in sec. 15, n, have been carried out the pupil will, when the reader is taken up, know a number of the sounds of the consonants, occurring in the words they used in their script sentences. It is easiest with little children to teach sounds in connection with initial letters. He has learned that some of the letters have different sounds in different words. The teacher should have drilled him in the sounds of the letters occurring in the first words of the book. This knowledge should be constantly applied. Thus: He comes to the word *hand*. He knows the phonogram *an*, and the sounds of *h* and *d*. (If he does not this is the place for the teacher to give him these sounds.) He puts the sound *d* after *an*, getting *and*, and then prefixes the sound of *h*. In this way he should be taught to work out the pronunciation of new words, a process he learns to do very rapidly if once he gets started, and the teacher knows, herself, how to make the sounds of all letters, distinctly and accurately, and keeps up a short drill daily upon phonograms and consonants. In this work concert drills are of little value. (See suggestions in 14 and 24.)

21. "*Learning the letters.*"

During the first weeks the teacher will sometimes name the letters as she writes words, or as she points letters out in the phonic drill. She incidentally calls attention to the characteristics of letters. Thus: "*Open* begins with a round *o*." "See this crooked *s*," or "this tall *l*," etc. It will be found at the end of a few weeks that the children have picked up from this incidental mention, the names of many of the letters. The letter names should all be recognized by the end of the first year, since the pupil is to begin to spell by letter in the second year. Pupils should also be able to recite the alphabet by the end of the first year. After the pupils are started in their books, teacher should add to the material for seat work for each child,

a lot of small cards containing the letters of the alphabet, both capitals and small letters. (Set of letters can be got from Thomas Charles Co., Chicago.)

22. *Learning to write.*

A child should begin to write just as soon as the impulse prompts him to this act; that is, just as soon as he can and will make the attempt. The writing for the first two months should be on the blackboard and should be large and free. If the demand for accuracy is made too early, it is likely to result in a cramped, awkward movement that persists in the later handwriting. Control of the arm from the shoulder should be the first thing aimed at. (See course for lower form.) The writing at the seats, beginning later, should be on unruled paper or on slates. It is best if children can have an extra large size of lead pencil similar to those known as the editor's pencil. This will prevent cramping of the fingers, and will promote freedom of movement.

Since imitation is the chief factor here (Sec. 7), the example set by the teacher, both as to freedom of movement and simplicity and beauty of form, will determine largely how her pupils will write. All the writing will at first be in connection with the reading: the words and sentences attempted by the child will be those used in the reading exercise. *The writing thus aids the reading* by making the letter and word-forms clearer, and by quickening the power to perceive differences and resemblances. If the teacher has written her small word-cards well, the sentences built out of them by the child will serve him as copies for his writing,—the pupil can set up his own copy.

For the pedagogy of writing, see Parker: Talks on Pedagogics, pp. 313–327.

23. *Spelling.*

Spelling during the first year is largely phonic instead of by letter. Regular exercises in spelling should be given just as soon as pupils have caught the idea that words are made up of

sounds, and know the sounds of a few of the letters. *This exercise will reinforce the reading* by increasing his power to find out words for himself and by giving him practice in doing it. Suggestions for this work are given in sec. 24. For valuable and varied suggestions upon Primary Reading, see Kellogg: Methods of Teaching Primary Reading in Ten Cities. Ed. Pub. Co.

III. Work in Phonics, Articulation and Pronunciation—the Vocal Mechanics of Reading.

24. *Instruction and suggestions to teachers.*

(NOTE. These suggestions are placed here instead of in the course for the primary form, because this work may profitably be done by middle and upper form pupils, if the teacher finds that this important part of their training has been previously neglected.)

a) The steps in teaching the sounds of the letters are:—

(1) Analysis of the spoken word into its separate sounds, (Sec. 15, n),

(2) Analysis of the written or printed word into parts corresponding to these sounds,

(3) The association of the sound with their symbols.

b) Qualify yourself in phonics.

Unless the teacher can do the first of the above, and can make the elementary sounds correctly and distinctly, she cannot do this important part of her work. But there is no excuse for not being able to make the elementary sounds correctly. Those who have not had this training, in their own school-days, can teach themselves. First turn to the table of consonants in the Guide to Pronunciation in the front part of the International Dictionary, and study it. Find out what the names in the table mean. To teach yourself how to make any consonant sound, pronounce some word having this sound as its initial one. After pronouncing it two or three times in succession, making a particular effort to give the initial sound distinctly, start a fourth time to pronounce the word and "cut

it off" after the first sound is made. You now have the element you want. Practice it. Proceed in this way until you can make all the surd and sonant sounds given in the table. Remember that the sound of g is not guh, nor of d, duh, nor of b, buh. Guh is no more the right sound of g, than gŭh, or găh, or gĕh. The sound of g has no vowel element in it. It is just the initial sound in "get," or "game." After getting the consonants. study the vowels.

c) A daily exercise in phonics distinct from the reading.

In most of the best primers and first readers, a carefully worked out system of phonics is given. Where readers must be used in which no such help is given, the suggestions given for phonics and word building in course for first year should be followed. Illustration of method is also given in 15, n. There should be one or two other exercises in phonics each day. If no more than from three to five minutes can be found for this exercise, much can be accomplished, provided the teacher plans for it. Here the teacher should endeavor to reinforce the work going on in the reading class, and drill upon phonics and word building.

d) Teach the consonant sounds first.

It is claimed that there is a certain sequence of ease that should be observed in the introduction of consonant sounds. The authors of readers differ as to what this sequence is. Tracy, (See "Psych. of Childhood, p. 149) gives the following: b, s, k, p, h, d, m, t, w, f, n, g, l, r, sh, th, ch, j, y, u, v, q. This with slight modifications is adopted here.

e) How to teach the consonant sounds.

Suppose you begin with b, write the letter on the board, and tell the children what it is, giving the *sound, not the name.* Practice it a little while and leave it. Find a moment between classes, when the attention of the beginners can be called to it, and the question put, "What is it?" Next teach *s.* Now for a day or two keep both characters on the board, and have short drills on them. Use any scraps of time for this. Teach k in the same way, and show them the other letter c, which sometimes has the same sound. Drill on the three. Keep on in-

troducing them one at a time until p, h, d, n, (instead of m as given by Tracy) and t, are learned. Write the letters, with broad lines on cards, and use these for drills instead of the blackboard. (See 14.)

f) How to conduct a drill exercise.

Stand before the class and show a card to each child in order. If he does not answer instantly, say "class," and let any pupil give it who can. Do not be discouraged if there are many failures the first few days. You will find your pupils brightening up under the drill, paying better attention, and soon showing decided progress. It will not take a minute to go over the cards several times with your class. Keep the drill up until the eight consonants are known at sight by most if not all of your pupils. You will find that this exercise has done much more for your pupils than merely to teach them eight phonograms.

Cautions: (1) Be sure you know how to give the right sound of every phonogram you attempt to teach.

(2) Do not teach new ones while those previously introduced are not well known.

(3) Never be satisfied with anything but the *exact* pronunciation from your pupils.

g) Introduce easy compound phonograms.

The following are selected for the first, because of their ease, and because from them and the consonants already known so many familiar words can be built, *an*, *at*, *en*, *et*, *in*, *it*, *un*, *ut*. There will be no need of any diacritical marking. Following the general plan suggested for the teaching of the simple phonograms, introduce the above, and drill upon them until they are known. Then begin word building, using the consonants. The teacher writes *pan*, covers *an* and has the child sound *p;* covers *p* and has the child sound *an;* child then puts the two together. Out of the eight syllables and eight consonants given, nearly fifty familiar words can be built. Make words of other phonograms within the range of the pupil's present acquirements, as *am*, *ad*, *ip*.

h) Teach the remaining consonants in the same way, as fast as the work can be thoroughly done and no faster. Build new words from them, as one by one they are introduced, and teach new compound phonograms.

i) Teaching the long vowels.

Add *e* to certain words selected from the first list, as *hat, mat, fat, pin, din, tin, win, fin, bit, kit.* This introduces the long sound of the vowel, and shows the child one of the conditions indicating this sound. *No marking of the vowel is necessary.*

j) List of common phonograms out of which hundreds of words can be built.

(1) Word phonograms: am, and, old, all, ant, ink, air, ear, ash, end, ice, ill, edge, out, ought, east, utter, arrow, oil, ounce.

(2) Combinations of *r*, which are difficult to analyze: ar (share), er (her), ir (sir), or (for), ur (fur).

(3) ack, eck, ick, ock; atch, etch, itch, otch; ew, ow, ang, ing, ong, ung; ight; ay, oy, and oi; tion, ness, oat, oad; ound, awl, eel, eal, eam, ance, eeze, ief, oop, oast, umble.

(4) Combinations of consonants that will be needed early,—bl, cl, fl, gl, pl, sl; br, cr, dr, fr, gr, pr, tr; sc, or sk, sm, sn, sp, st.

k) Suggestions for exercises.

Exercises with these phonograms take many interesting forms, which are described in the course of study for the grades to which they are adapted. If pupils in higher grades than those specified have not had this work, they can take the same exercises with profit.

Arnold: Reading; How to teach It, pp. 70–85.

l) The effects of these exercises.

(1) These word-building exercises have their first effect upon the reading by making clearer to children the idea of classification, that is of "families" or

types of words, thus increasing their power to recognize and pronounce new words.

(2) The next effect is seen in the power to spell. These exercises train children's ears to hear the sounds in words, and knowing the symbols of these sounds, the correct form of words, that are at all phonetic, is more readily mastered.

Carpenter, Baker and Scott: The teaching of Eng., pp. 109-112.

m) The treatment of words that are not phonetic.

There are many words whose correct pronunciation and spelling cannot be told from their sounds, such as *through*, *tongue*, *cough*, *enough*, *laugh*, *where*, *their*. Such words must be mastered by sight. The teacher will have no difficulty in classifying the words that occur upon any page of the reading lesson, into those that must be learned by sight, and those that can be referred to some phonetic type. Also in the spelling lists the same classification will indicate to pupils where the real difficulties lie.

n) Syllabication.

The importance of teaching children early to recognize the syllables in a word is frequently not appreciated by teachers. Dividing a word into its syllables is putting it in shape to be mastered part by part. The best method of indicating syllables is thought to be that of *underlining* with a broken line as here illustrated. When the syllables are thus made known to the pupil he proceeds to get the pronunciation of the word syllable by syllable. Facility is soon gained, (by the third year) to pronounce words not underlined, the pupil making the mental division of the word. When spelling by letters is begun, which will not be until the second year, syllables are indicated by a distinct pause; as, "b-e-a-u-(pause)t-i-(pause)f-u-l, beautiful."

o) It is not to be thought that this work in phonics is to be limited to the primary form. The study of sounds should continue through the middle and into the upper form. If in any

form a child hesitates with a new word, refer him at once to a word he knows of the same type.

25. *Imperfections in speech.*

a) Imperfections classified.

(1) Those due to physical defects.

(a) Defective organs of speech.

(b) Defective hearing.

(c) Defective nervous control of the organs of speech.

(2) Those due to imitation of something else than good English.

(a) A foreign language spoken in the home.

(b) Dialects peculiar to families and communities.

(3) Those due to neglect of parents, who have allowed bad habits to become fixed, which could have been prevented if attended to earlier, as to give the sound of *d* for *g*.

(4) Those common for children,—lack of clearness and precision in articulation.

b) The duty of the teacher.

(1) It is the duty of the teacher, to discover as soon as possible the language need of every pupil, young and old, and proceed to minister to those needs, as wisely, as patiently and as persistently as possible. Daily attention must be given to clear speaking.

c) Suggestions.

(1) Some cases coming under (1) above, are cases for the physician rather than the teacher. Class 1 (b) are often misjudged. Make sure that the pupil whose speech is indistinct, and who does not improve under your care, is not deaf before you set him down as stupid. Perhaps the best place for the child is in some day-school for deaf. Such cases should be reported to the county superintendent. Class 1 (c) stammerers, can often be

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helped to better control by being allowed to read and recite privately to teacher.

Salisbury, The Theory of Teaching, p. 83.

(2) As imitation has made the speech of these pupils (Class 2) what it is, so it will continue to operate. Be sure that you set a good model as to tone, pronunciation and grammar. Besides these influences which will be always at work, whether we think of it or not, there must be other things done. The exercises here recommended will also benefit classes 3 and 4. The teacher should know how to place the organs of speech for the proper making of every sound (Sec. 24, b), so as to be able to tell the pupils what to do. Have pupils commit to memory some good articulation exercises and practice them. One or two good exercises committed to memory, and hence ready to be used at any odd moment are better than a variety of exercises not so familiar. The following exercise is the best one known to the writer. It is a combination of the cognates with the long and short sounds of the vowels, thus: bā′,-pā, bă′-pă, bē′-pē, bĕ′-pĕ, bī′-pī, bĭ′,-pĭ, bū′-pū, bŭ′pŭ, boí-poi, boú-pou. Change the accent to second syllable: bā-pā′, etc.

(3) Prescriptions.

(a) For the foreign-speaking child who has trouble with his *th's*, use thā′-thā; thă′-thă; etc., telling him to attend to keeping his tongue out between his front teeth. The pronunciation of twenty-four syllables with the tongue in right position will soon make the old habit yield to the new.

(b) For the pupil who says "wery" for *very*, use the cognates v and f, telling the pupil to put his upper teeth on the lower lip, and at-

tend to putting it there each of the twenty-four times: vā′-fā, vā′-fā, etc.

(c) For the lisper use the cognates, z and s: zā′-sā, zā′-sā; telling the pupil to shut his teeth, and attend to keeping his tongue inside them.

(d) For the pupil who says "tan" for *can*, and "does" for *goes*, use the cognates g and k, gā′-kā, gā′-kā, etc., having the pupils turn the tip of the tongue down under and attend to keeping it there while the syllables are said.

Remember that these are vocal gymnastics, and to be beneficial they must be carried out like any other gymnastic exercises, with vigor and precision.

(e) To strengthen final consonants, other exercises can be used like, ap, ip, ep, op, up, ad, ed, etc.

(f) Phonetic spelling will help classes (2), (3) and (4) by training the ear to catch all the elements there are in words.

IV. Work in Thought-getting—the Mental Aspect of Reading.

(NOTE. This topic applies to all grades and forms.)

Introduction. Teachers should not forget that the chief purpose in giving pupils the ability to recognize words, as discussed under III, is to enable them to get thought from the printed page. Words are the signs of ideas. It is only when these signs perform their function and when seen call up in the mind their appropriate ideas, that a person is reading. *The habit of thought-getting, of not being satisfied unless words yield thought is the most important habit in education.* It is the basis of all profitable study of books. The child in whom

that habit is early formed, is not so badly off if circumstances stop his schooling at the end of his fourth year, as happens to half the children who enter the primary grades of the schools of Wisconsin and other states.

Parker: Talks on Pedagogics, Ch. IX.

Clark: How to teach Reading, Ch. V.

26. *Things that promote thought-getting.*

a) Right methods of beginning:

The great importance of forming in children from the start the habit of thinking, that is, of imagining, or picturing what they read, makes the primary teacher a factor second in importance to none in the entire school history of any individual. The method described in II is believed to be one that will lay the foundation for this habit.

b) Right reading matter.

The reading matter should be worth the attention of children. Suitable and interesting thought material is the true basis of progress in reading. This demand is met by book companies on all hands, who are putting out new readers, which furnish pure elevating literature adapted to the interests of child life. It is the business of teachers to know about these. Parents and school boards must be educated up to a better standard in regard to quality and quantity of reading books for their children and teachers have a work to do right here. It would be thought absurd for any parent to oblige his children to read and work by the light of a single candle, when other luminants are easily available. Is it not vastly more absurd in this book-illuminated age, to make his child live in the tallow-candle age of school readers, and injure his mental eye-sight by confinement to one book, which if the best, is not enough.

c) Have the reading matter reasonably easy at every stage of the child's progress.

(1) It is best in primary grades, not to read one reader to the end, but to read the first part of one and then of another, and another, the easiest of course, having been chosen for the first effort. Then go back

and finish the first; then the second, and so on. Children who have the books can thus read four or more readers a year.

(2) Too much importance must not be attached to the number of the reader as a guide to its proper place in your school. It is often best to put the more difficult first readers, or the last part of those begun in the first year at the beginning of the second year. Also in the third year to proceed in the same way with second and third readers. It is found that children improve much more rapidly with this arrangement of the reading course, for the reason that the vocabulary is not so difficult, they read much more, and enjoy reading, and the important habit of thought-getting at every stage is more apt to be promoted. If after careful preparation by the teacher, (see "d" and "e" following), a pupil is unable to read with reasonable smoothness, the reading matter is too difficult.

d) A preparatory exercise, adapted in length and character to circumstance, should proceeds the oral reading in all forms.

(1) In the early stage, the preparation followed by the oral reading, precedes sentence by sentence. Secs. 13, 15 and 28.

(2) Later the preparation may occupy a separate period in the program. When the pupil has reached this stage he is approaching the time for study. The preparatory exercise should have taught him what "study" means.

(3) In the third stage, growing gradually out of (2) there is first the preparatory exercise; second, a time for independent effort, a study period; third, a chance to show what the study has amounted to, that is, to read orally the lesson which has

been studied. In the primary grades there should be at least these two exercises daily for reading. In higher form work, they may be on successive days. After pupils are expected to study by themselves, this preparatory exercise is the assignment. It must precede the study period, and provide for it, and should take no more or no less time than is needed to give the pupils a motive for studying. For illustrative exercises see section 27.

e) What the preparatory exercises should do. It is impossible to get thought from the printed page unless the words stand for something related in some way to our experience. Hence the preparatory exercise should:—

(1) Reveal to the teacher, through questioning, what the pupils already know about the lesson they are to read; in this way old experiences are recalled, and made ready to aid in appreciating the new ideas of the coming lesson. This is a sort of language lesson.

(2) It should reveal what more the pupils need in order to understand and enjoy the new lesson and supply that need by pictures, drawings, descriptions, story, incident. Also a kind of language lesson.

(3) The feelings of the pupils should be touched that they may be put in the right emotional attitude towards the piece to be read.

(4) In (1), (2) and (3) the preparation of the minds of the pupils for the thought and feeling is indicated. The preparation must also help the pupil master the words used in the book. Hence the teacher will write upon the board, explain, and assist pupils to right pronunciation of words too difficult for them to master; or, after the dictionary habit is started, she will point out those they can master by themselves. After this preparation which should interest pupils in, and clear the way for,

intelligent study, the seat period given the independent effort, should be profitable.

(5) The direction should not be "read the lesson six times," which has little value, but, "read the lesson so that you will be able to tell me the whole story of it. If you cannot get it copy down all the words and sentences that trouble you." A device that is excellent for stimulating study is to have pupils prepare in writing questions upon the reading lesson to be asked of the other pupils. Both the questioner and the ones questioned are spurred to effort. See illustrations in Lesson Section 27.

Arnold: Reading, how to teach it, Ch. IV and V, also pp. 203–205.

Salisbury: The Theory of Teaching XXXVII, Law of Apperception.

f) How the reading exercise should be conducted to promote thought-getting.

(1) Pupils must not be allowed to read orally until they have the thought.

(a) If pupils have been started as described in 15, the children have practiced this from the beginning.

(b) In the first readers, have pupils get the thought of a sentence and then look at the teacher and give it.

(c) When the paragraphs grow larger, let the pupils read the paragraphs through "with the eyes" each letting the teacher know at once when a word troubles him. She helps him to apply his knowledge to phonics in getting it. Some one is called upon for the oral reading.

(d) When pupils have studied their lessons at their seats, the teacher will open the reading exercise by questioning them, to see

what their study has amounted to. Her thoroughness here will largely determine what the study habits of her class will be. This also is a language exercise.

(2) The teacher should have the conditions best for promoting thought-getting.

(a) By making the pupil who is reading aloud feel that he is responsible for giving thought to others, at least to herself. Hence the teacher will always close her book and listen when a pupil begins to read. It is not always best to have the other pupils close their books. This sense of responsibility is greatly increased by having pupils in succession read to the class from some library book or supplementary reader. If the reading matter is easy, at least one grade below that in which he is regularly reading, the pupil will need less time for preparation than if the reading matter requires study; but (1) above, holds in so-called "sight reading" as elsewhere. A pupil can do good sight-reading only when he is a good sight-reader.

Arnold: Reading; how to teach it, pp. 205–208.

(b) Let pupil stand before the class and have an audience when he is called upon to read something of some length which he is prepared to give well.

(c) It must be understood that only the teacher who has good control can hold her pupils to their best effort in thought-getting, or in performing any other school duty.

Clark: How to teach reading in the public schools, Ch. V.

(3) The teacher should allow no school practices that center attention elsewhere than upon the thought.

(a) One of these to be avoided is "reading till they make a mistake." Since a "mistake" is the wrong calling of a word, children soon come to know the game, and devote their energies to calling the words rightly. Perception exercises have their place, but such a one as this tends to distroy the chief habit that the reading class should aim to form—that of getting, holding, and expressing the thought.

(b) Another of these practices is allowing class criticism to run to mere fault-finding and competition on the part of the listeners as to who can find the most mistakes; "mistakes," again, being only those of pronunciation or other matters of form. This is absolutely destructive of power to get thought, especially of the sensitive child, and is conducive to bad habits in him, besides being harmful to the morals of the others. An atmosphere of helpfulness and sympathy is what is needed.

(c) For the teacher to interrupt a pupil's reading for the correction of slight errors disturbs the thought-getting-holding-and-giving process. If he blunders badly he should be stopped altogether and made to get ready for the oral reading, with the teacher's help if necessary. But if he is reading with animation and makes errors that do not seriously affect the thought let him go on to the end of his time. Corrections can then be made.

(4) Criticism of the right kind will promote the habit of thought-getting. The form of criticism that is legitimate in a reading class always gets at all defects in oral reading from the standpoint of the thought. The teacher who has listened with book closed says, "I did not get the thought of the first sentence; you must have miscalled a word." "Look it through again and when you have the thought give it." Judicious commendation of really commendable qualities in any pupil's effort, is always in order.

(5) There should, occasionally, be entire exercises when there is no oral reading. This can be tried, when in a new supplementary reader, a story is selected. One purpose of this is to make pupils *enjoy* reading. The pupils read silently, the teacher sitting ready to help them when difficulties arise. The next exercise may be given to the discussion of what was read. A third exercise may have for its aim practice upon the oral reading of the story. Pupils will now be patient under criticism and repetition, and all the work necessary to make them able to read this story which they have enjoyed, in such a way that others will enjoy it.

g) How to judge the success of a reading exercise.

"We may so easily underrate the importance, for the future development of the child, of the associations that have clustered about the class exercise, the class room, and the teacher. It is well in reviewing our efforts for a given period, to ask ourselves: Has the work depressed or braced the mind and character of our pupils? Has it developed power? In what attitude towards the subject have the pupils been left? There are no more important test questions than these; and by the answers to them must the ultimate success or failure of our efforts be judged, be the efforts with a beginner of five or the high school pupil of fifteen."

Chubb: Teaching of English, p. 75.

V. Oral Reading,—thought expression, involving the vocal-mechanical and mental acts.

27. *Instruction and suggestions for teachers.*

a) *Agencies that combine to make good oral reading.*

(1) Right breathing.
(2) Correct articulation.
(3) Clear enunciation.
(4) Agreeable tone of voice.
(5) Natural expression.

b) *Influences that bring these agencies into operation.*

(1) The desire to read.
(2) Ideals of what constitutes good oral reading.
(3) Drill to develop power to progress towards the ideal.

c) *The teacher's part in promoting these influences.* The influences named in "b" must largely come from the school. Read IV, again, in this connection.

(1) How to promote *the desire to read*, which is a *great propelling force;*

(a) The reading exercise must be pleasant. Pupils do not fall in love with things that bore them.

(b) The reading matter has much to do with the interest and pleasure felt. The evidence that any piece is mischosen for pupils is, much labor on words, construction, allusions, in order that a work may be understood. The right reading matter is literature within the range of the pupil's interest and experience. (See 17 and 26 b and c.)

(c) Thought must be properly developed. Pupils must know and feel before they can express. (See 26, d and e.)

(d) Do not try to make your pupils perfect in too many ways at once. Get one thing at a time. When you have secured animation

in the reading, you have the fundamental thing, just as spontaneity and freedom are the fundamental things in language. Other qualities that make for good reading can be built up from that foundation. (See 26 f, (1) and (2).)

(e) Wrong criticism may weaken or destroy the desire to read. (See 26 f, (3), (4) and (5).)

(2) The influence of a pupil's ideals.

(a) Children are not to blame for their ideals. The child who can look off the book and tell the thought of a sentence or paragraph to you naturally, but who assumes a higher pitch and calls words mechanically as soon as he drops his eyes to the book, does so because the latter is his ideal of reading. *Change his ideal.* Tell him when he has given the thought well in nearly or exactly the words of the book, that he has *read the sentence* or paragraph well, and let it go at that. It is one way of bringing the pupil to understand that good reading is expressing the thought as a person would give it in conversation.

(b) Build up better ideals. Let your children hear a little good reading every day. If you are not a good reader proceed to better your condition. Get such a book as Clark's "How to teach reading in the public schools" and study it through from introduction to index.

(3) The influence of drill.

(a) The regular reading exercises will suggest to the teacher certain points for the drill.

(b) Let pupils take part and act out all conversational lessons, or parts of lessons. The

repetition of these does not diminish their interest. Children are born dramatists, they love to act out these pieces.

(c) Use the poems that occur in reading books for drill in getting smoothness, and right pausing.

(d) Encourage pupils to read orally at home, and thus rehearse the lessons whose thought and expression have been developed in class.

d) *The teacher's part in perfecting the agencies named in a.*

(1) Teach pupils to breathe rightly.

Since the breath is the material of sound, right breathing is needed for full; clear, distinct, effective utterance. To have right breathing, and hence prepare the way for correct utterance, an erect, free, expansive position of the chest is an indispensable condition. The teacher should look after this, and be as watchful of the child's habits of sitting at his seat, as of his position when reading or reciting on his feet.

(2) Work for clear articulation. Since correct articulation means giving to every element of a word its proper character, the relation of articulation to the study of phonics is readily seen.

(a) If the pupils in the higher forms have not been taught phonics, the directions given in 24 and 25 can be beneficially followed out with them.

(b) The need of this drill. Clearness and beauty of pronunciation depend upon the accuracy and force with which the muscles controlling the organs of speech work. Muscular skill of any kind can come only from directed exercise.

(3) Insist upon clear utterance.

(a) Pay daily attention from the start to clear speaking. Give occasional exercises to break up the habit of mumbling, and secure proper use of the vocal organs. (See 25, c, (2) and (3).)

(b) Bent head and lowered chest is a common cause of indistinctness. Have pupils stand with head erect, and book held in such a way that while it is in right position for the eye, it will not obstruct the tone. No rigid directions need be given,—just common sense suggestion is enough.

(c) Absence of motive to read distinctly. Why should a child exert himself to make others understand when his audience all have books for themselves, and are not three feet away from him. Give pupils a motive for enunciating distinctly. Get away from the reader and urge him to make you understand him. The worst mumbler in the school never fails to make his fellows understand him on the playground, even though the stretch of the school yard be between them. (See 26 f, (2).)

(4) Do what you can to correct disagreeable tones.

(a) Some that you can help little or not at all:—Those that arise from disease, as catarrh, enlarged tonsils; those that are due to inherited defects, as cleft palate.

(b) Others that can be helped: Harsh tones, drawling, high pitch.

(c) Imitation is the most potent agent in helping the qualities named in (b). The teacher who speaks and reads in a smooth well modulated voice is doing much all the time.

(d) Dramitization of these pieces in the reader where the proper rendering demands low, smooth, soft tones.

(5) Help to build up habits of natural expression.

(a) When the directions given in 15 have been followed in starting pupils in reading, and when, afterwards, they are treated as directed in 26, the question of natural expression will not be a troublesome one.

(b) To improve habits in others, proceed always from the standpoint of thought and feeling. This means that you are *not to talk* to pupils about inflections, pausing, emphasis, and so on. Bend your energies to making the conditions of thought and feeling right, and then the manifestations of these conditions, which in the child's voluntary, natural speech are instinctive, will appear of themselves in his reading.

(c) Remember that *emphasis is any means of making the thought stand out.* Stress, that is, hitting the word harder, is only one form of emphasis. Another important form of emphasis is inflection or voice bending. To teach emphasis, teach analysis of thought. Every sentence has a central idea and until it is found the sentence cannot be read with proper emphasis. That central idea was in the mind of the author when he put that sentence into relation with others. Ask questions that will probe for the central idea of the sentence. A teacher who is able to put such questions has attained the most important art in the teaching of expressive reading.

(d) Illustration of what is meant by (c).

Such an exercise as this might be used with upper form pupils, to reveal to them the importance of emphasis in thought interpretation. The following sentence may be written on the board: Frank rode his brown pony to school this morning. The central idea of this sentence and hence the reading of it will depend upon its relations to other thoughts and conditions.

First we will suppose that this is a sentence out of a story which has been told us about Frank and his brother John, both of whom have the privilege of riding the pony. Then the reading is, "*Frank* rode his brown pony to school this morning. Second let us suppose that Frank has two ponies, a black one as well as a brown one, both of which he can ride. Then the reading would be, "Frank rode his *brown* pony to school this morning." As many different relations may be invented for this sentence as there are different words in it, each of which would change the central idea and hence change the emphasis. It would be a mechanical and worthless exercise for the teacher to tell the pupil to read it and put the emphasis on a certain word. Help the pupil to get the central idea, and then the emphasis will put itself where it belongs.

(e) Remember that punctuation marks are to show the grammatical relations of the elements of the sentence, and are only indirect guides to expression. If the thought demands it, pauses must be made where there are no commas. If the thought de-

mands it, the voice, instead of being kept up, must fall at commas. If the thought demands it a question is given with a downward slide, and this happens just as often as the demand to give the question with the upward slide.

(f) Rules for emphasis, or inflection or pausing are only a hindrance to good expression.

References. McMurry: Special Method in the Reading of the English Classics, Chapters IV and V.

Chubb: The Teaching of English, Ch. VII and X.

Clark: How to Teach Reading, Part Two: Method of Instruction.

Salisbury: The Theory of Teaching Ch. XXVII, "Habit."

VI. Illustrative Exercises.

28. *Exercise suitable to the First or Second Year.*

The first sentences of the lesson are as follows:

"The milkweed babies are all in their cradles.
The wind came to the milkweed and shook the cradles.
He said, 'Find wings and come.'
Then the babies came out.
The wind blew the babies away.
Where did they sleep all winter?"

(Taken from "Pathways in Nature and Literature, First Reader, University Pub. Co.

a) The general preparation for this lesson is the collection and study of the milkweed pods containing the closely packed winged seeds—the milkweed babies. The pod has been spoken of as the cradle of the babies. The words "Milkweed-babies" and "cradle" have been written on the board during the discussion.

b) Reading.

Teacher: "We will read to-day about the milkweed-babies that we have been looking at and talking about. The first sentence tells you where they are." With this hint the children begin to work out the thought. When all or several have the thought, the teacher calls on one to stand and tell it. This "telling" is the reading, and the more freely and naturally he tells the thought, the better is the reading.

Teacher: "The next sentence tells us what happened one day to the babies." Here it may be necessary to help some one with the word *wind* which is done by the use of the phonogram *in*, prefixed by the sound of *w*, and followed by *d*. (See 24, g); also shook, which is *ook* with *sh* prefixed. Probably with this help, the children can get the thought. It is then told, (read) as before.

Teacher: "The next sentence tells us what the wind said." The children study and tell the thought.

Teacher: "Do you want to know whether the babies did what the wind told them?" The exclamation from some child, "Yes, they did," shows that he has read the sentence.

Teacher: "What do you suppose happened then?" Children study and tell.

Teacher: "The next sentence asks an interesting question that I think you can answer." Children read as before. The question or suggestion of the teacher preceding each sentence is the preparation referred to in 26 d, (1).

The same general plan is followed when the pupil is able to read a paragraph at a time instead of a sentence; and, later, when he is able to advance by still longer thought units.

29. *Exercise suitable to the Third or Fourth Year.*

THE SHIP COMING HOME.

1

Why stand you there,
Sweet maiden fair,
With eyes upon the sea,
Forgetting play
To gaze all day
On ocean rolling free?

2

Is there a ship
From foreign trip
Now coming up the bay,
That brings you gold
For treasures sold
In countries far away?

3

Ah, there's a line
Of black smoke fine
Upon the distant sky!
She sees a speck
The ocean fleck
Beneath the smoke on high.

4

It grows and grows
Until she knows
It is the steamer due.
Her little heart
Beats wild its part
As comes the ship in view.

5

She turns her head;
Her cheeks are red,
Her eyes no longer roam.
"I want no gold
For treasures sold—
That ship brings papa home!"

(From Baldwin's School Reading by Grades.)

The preparatory lesson.

The preparation for this poem will be very different for children of different localities. The Sheboygan or other lake port child will have in his experience all he needs to build up, under the questioning of the teacher, the pictures suggested in the poem. Not so the child born and reared inland. How shall the teacher proceed with the latter?

30. *First step.* (See 26 e (1).)

Teacher: "How many of you have ever seen a large body of water, stretching away as far as the eye can see?" If some one responds, he is asked to tell his experience to the others.

31. *Second step.* (See 26, e, (2).)

Teacher: "Here is a picture of such a large body of water called the ocean." "Ocean" written on the board. If so fortunate as to have one, the teacher shows children a colored picture representing the sea and a steamship upon it. Otherwise she uses whatever pictures the geography or library books may afford;—*but pictures she must have,*—the sketch in the book is not enough. The pictures are discussed. The line where the sky and water seem to meet is pointed out. Pictures put away for a time.

Teacher: "Have you ever been going along the road, when a man has come towards you over a hill?" Teacher draws with simple lines the situation. Teacher: "As he came up the hill in front of you, what would you see first?" Either experience or the drawing should prompt the answer, "The man's head." "Yes, and then his shoulders, and finally you could see his whole figure from head to feet."

Teacher: "You know the earth is round. When a steamer is away off on the ocean, the curve of the earth hides the ship from sight, just as the curve of the hill hid the man from you. As the steamer comes nearer you first see,—what do you suppose?" Different answers are given. "Yes, Charlie is right, you see the smoke first. Then the smoke stack, then more and more of the ship, until it is all in sight." (Use pictures or drawings to make the idea clearer.)

32. *Third step.*

Teacher: "Open your readers to page 82, and look at the first picture. (It is a small sketch of a little girl standing on the shore, and looking eagerly out to sea.) Where is the little girl standing? What makes you think so? What do you suppose she is looking at? What may she be expecting? Why is she so interested? These may be some of the questions the teacher would ask, her purpose being to get the children thinking about the little girl and so preparing them to understand and enjoy the poem. (See 26, e, (3).)

Teacher: "Look at the next picture." (A small sketch of a steamer at sea.) "See the black smoke coming out of the smokestacks. It is a large ship, isn't it? Do you think the steamer has anything to do with the little girl?" Answer, "I think she is looking for the steamer." Teacher: "Do you think it may be bringing her something?" Oh, so many things come to people from over the ocean. The ships bring beautiful things from foreign countries, which means countries across the ocean from us. (*Foreign* and *countries* written on the board.) Ships carry away from our country beautiful things, treasures we can call them, and when these things are sold in foreign countries, the ships bring the money back to the merchants who owned the treasures. (*Treasures* written on the board.) "Do you think this steamer was bringing this little girl some beautiful gift, or some money? See the other picture. (A sketch of a man in uniform just leaving the steamer.) Who do you think the man is? Can you guess whom the little girl is waiting for? (See 26, e, (3) and (4).)

33. *The fourth step, The assignment.*

"This little poem tells you all about it. If you read it you'll find out what she was expecting, and whether you guessed rightly about the man. Perhaps you will read, too, how this ship came into sight. Some of the hard words are on the board. Mary may pronounce them. There are a few others." The teacher will introduce other words according as she judges the

needs of her class to be. Perhaps the ten words given in the list at the beginning of the lesson will be all that are necessary. She may need to prepare them upon more. She will do well to introduce these words *in relation* not isolated from the thought of the lesson. Thus: "The little girl is called this in the story." Writes *maiden*. "When we look at anything very steadily we are said to gaze at it." Writes *gaze*. "Did you ever hear anyone say that the sky was flecked with clouds? What did it mean?" Teacher writes *fleck*. "Study the poem carefully so that you can tell me all about it tomorrow."

Remarks:—There is very little value in the study of a list of isolated words. Children should be taught early, as this exercise illustrates, to study words *in the sentences*, and so later use the dictionary intelligently, and effectively.

The teacher who reads this will say that the time in her program for reading is not long enough to do all this. The answer is that the time given to reading is too short, too precious, to be used in any other way than to inculcate right habits,—open up the mind of the child to an understanding of what reading really is and teach him to interpret. Call the first two steps of this a geography lesson, and begin the work upon it several days before the reading lesson. Then in the reading lesson you can begin at (3). That step can be taken in one exercise. Arnold: Reading, How to teach it, pp. 203–205.

34. *Fifth step.*

Children study independently at seats. Questions written upon the board will often stimulate and guide pupils in their study. As, "Who is talking in the first stanza? In the second? What do the third and fourth stanzas tell you? Does the little girl answer the questions?"

35. *Sixth step.*

Testing the results of the study, and development of the thought. Books are closed.

Teacher: "Were you right yesterday in guessing who the man in the picture is? How long did the little girl stand

watching the ocean? Did you ever watch that long for any one? What does 'ocean rolling free' mean to you? See sketch. What was the first sign the little girl saw that told her that the steamer was coming? What next? The book says, 'She saw a speck the ocean fleck!' What does that mean? What question was asked the little girl? How did she answer it?"

Open books. The word list is pronounced quickly.

Teacher: "One of you may read the first stanza, and talk to the little girl." Teacher calls on pupil. Teacher: "—— may ask the little girl the next question." Be sure of those hard words before you begin. Pupil reads. Teacher: "Now we will think we are standing there with the little girl, looking out at the ocean, while —— reads us about what she sees." "Now the ship is at the wharf, and the little girl catches sight of somebody. Who wants to tell us what she said?"

The general order of procedure is outlined here. It is not supposed that the oral reading is satisfactory in every way. For method of criticism see 26, f, (4), of which the following is a specific illustration:

The pupil reading the third stanza lets his voice fall after "nine." Why did he do this? Simply because he did not have the thought-relations clearly in mind; he did not picture these relations. The remedy then is, help him to get the picture. Teacher: "The little girl is looking away off across the water to where the sky seems to come down to the sea. What is the first thing she sees that makes her think that the steamer is coming?" Ans. "Black smoke." "Have you been where you could see a locomotive rush by, and have you noticed the long line of smoke left behind the train? The steamer does the same; it leaves a line of black smoke upon the distant sky. Look again at the first three lines. Now read it." The probabilities are that the child will correct the wrong pausing. The thing not to do is to say: "Read it again and keep your voice up at 'line' "; or to read it for him and have him imitate.

36. *Seventh step.*

The reading of the poem, without much comment, just to see what the result of the study and teaching has been.

Several days after this the teacher may open the reading lesson by telling the class to listen while she reads them a poem. She reads "The Ship Coming Home," simply, naturally, giving the very best interpretation of which she is capable. If she is a really good reader, the exercise will have an effect in shaping ideals—a sort of imitation that is perfectly legitimate.

From all this we conclude that "teaching" reading is very different from hearing the reading class. We want the children of the common schools taught reading.

For further illustrative lessons see:

Arnold's Reading: how to teach it, VII and VIII.

Chubb: The Teaching of English, pp. 96–102. (The author uses Wordsworth's familiar poem "Lucy Gray.")

Clark: How to Teach Reading, part three; literary interpretation.

COURSE IN READING.

Primary Form—First Year.

37. 1. *Aim.*

Mechanical fluency, and foundation of right habits.

2. *The preparation of the teacher.*

Read the preceding discussion of Reading and familiarize yourself with its general plan and purport. As to daily preparation, the teacher must plan as carefully for her primary reading as for the upper form classes in geography and arithmetic. She should also provide for seat occupation, which occupation should be profitable and should have for its aim the furthering of some regular school interest, and not be merely "busy-work."

38. 3. *The daily program for the first grade.*

Ten minutes is long enough to hold first year pupils to one line of effort in recitation. There should be frequent change, and attention should be given to them just as often as possible. Much can be accomplished in a five minute period if the teacher knows just what she wants to do in that time. There is a variety of interests related to reading that afford profitable exercises for primary children, both in class recitation and at seats, and all helping towards accomplishing the aim of the year. It may not be possible for teachers with full programs to get all these exercises in daily; but it is believed that some "chinks" in the daily program can be and will be turned to profitable use with the little ones, if teachers know better what to do.

39. 4. *Exercises relating to reading.*

The following exercises distinct in themselves, yet all bearing upon the reading and helpful to one another when properly correlated constitute the Course in Reading for the first year; and, with modifications, as other school subjects besides reading claim attention, for the second and third year.

a—Language, oral expression, the preparatory exercise.
b—Reading.
c—Writing.
d—Phonics, word-building.
e—Spelling.
f—Occupation and construction work.

FIRST YEAR.

40. 5. *Outline of the Course.*

a) Oral language, the basis of reading.

(1) During the period of blackboard reading. The sentences read by the child from the blackboard are those spoken by himself. These sentences follow observation, action, or narration, and are the result of

the pupil's effort to tell what he has seen, or done, or to reproduce the story heard. (See Sec. 13, 14 (1), and 15 a.)

(2) When pupils read from the book. The language exercise is frequently necessary to prepare pupils for the thought of the lesson. It is here that the unfamiliar words are presented. (28 a.)

(3) Adapt the preparatory lesson to conditions. Omit when the thought of the reading lesson is familiar. Use time in program for other language work. See Course in Language for First Year.

b) Reading.

(1) A description of how to begin is given in Sec. 15.

(2) Pupils should be kept at black-board reading until they know what reading is, that it is thought-getting; and have acquired a vocabulary that will make the first twenty or thirty pages of the book easy and enjoyable, Sec. 16, 17 and 18. See McMurray's Special Method in Primary Reading, Chap. VI for further help.

(3) The teacher should have the strips described in 14, and give by use of them drills in sight-reading of commands, executed rapidly as proof of the reading, and of other sentences which are "made true." The teacher's part of this exercise is to flash a card upon the sight of the pupils and speak the name of a child; then another, etc. See 15 i and j. Concert work has no place here.

(4) If the spring-roller curtain is adjusted as described in 14, new lessons can be made

out of the familiar words and kept covered from sight. This apparatus will also serve to exercise the pupil in quick perception, by exposing a sentence for a moment and then covering it.

(5) Make the word cards as suggested in 14 , (c), and give drills with these for facilitating quick recognition of words.

(6) Make word-cards described in 14 (d) and distribute them for seat work. (See "Occupation" below.)

(7) Amount that should be accomplished. By the middle of the year of eight or nine months, pupils should have read the easier parts of at least two primers, like "Child Life" or "Holton" or "Hawthorn." By the end of the year they should have completed these and read the easier part of at least two first readers. First year pupils can and do read more or less in six or eight readers.

NOTE.—When a teacher is unable to get more than one reader for her pupils she can greatly extend the range of their reading matter by getting one copy of a new reader, and writing the lessons on the board. Here the curtain is helpful.

c) Writing.

(1) For the place of writing in the educational development of the child read Sec. 1–7.

(2) When and how the first writing should be done, see 22.

(3) The words and sentences should be those that the pupil is having in his reading, thus writing, reading and spelling cooperate.

d) (4) Suggestions for the year's work.

First—tracing.

(a) Teacher writes with letters three or four inches high the name of some child, as Carl. If colored chalk is used it is all the more attractive.

(b) Children trace in the air, that is, point with outstretched arm, following the movement of the teacher as she writes or traces the word.

(c) Individuals are sent to the board to trace over the copy freely and lightly, while the class observe.

(d) Children are given individual places at board, each with a large copy.

(e) At signal ("all aboard!" perhaps, for the marks may be a railroad track which no cars must leave until the end is reached), children begin to trace, each as fast and well as he can.

(f) Teacher has the same exercise using a large oval instead of a word.

(g) On sheets of scratch paper, the teacher will draw large ovals. Children are given these for seat work, tracing them for development of free movement. (See suggestions about pencils, Sec. 22.)

e) Second, independent writing.

(a) When children have developed some arm-control, have them attempt independent writing—(third month).

(b) Excellent script copies are frequently found in the reader. Have pupils use them for seat work.

(c) Let pupils set up the copies from the word-cards in their envelopes.

(d) In all this work the teacher should realize that imitation is the master-agent in determining what a pupil's writing will be. Sec. 22.

f) (5) Drawing and cutting exercises help hand control and hence benefit writing.

g) Phonics and word-building. (Read 15n, 20 and 24c.)

(1) The first work in phonics should aim to develop in pupils a "sound-consciousness". By this is meant to bring pupils to a realization that words are made up of sounds, to train to detect these sounds when heard. See 15 n.

41. *Further suggestions.*

(1) (a) The teacher calls upon children to point at or find different objects in the room; as "point at the c-l-o-c-k." "Frank may find the f-l-a-g," etc.

(b) Commands may be given in which the principal words are spelled by sound, as, "r-u-n to the d-o-o-r."

(c) Much of this work need take no time, but be incidentally done in connection with other exercises. Thus: In the recital of a story, the teacher spells the important words by sound, that is, pronounces them so slowly that the sounds are distinct. "The little girl met a w-o-l-f, as she was going through the w-oo-d-s." Children are obliged to blend the sounds in order to get the word.

(d) Game: "Tell what I am thinking about." Teacher spells d-o-ll, f-l-a-g, s-u-n-sh-i-ne.

(e) Game: "What I saw in a store." Teacher spells c-a-n-d-y, etc.

(f) Game: "Guess who it is. Teacher: "I see some one who wears a b-l-ue d-r-e-ss. She has b-l-a-ck ey-e-s," etc. Other devices will probably suggest themselves to teachers.

(2) Have pupils give words that have initials and endings like the word named by the teacher. Teacher: "man," Pupils: "more move Mary," etc. Teacher: "town," Pupils: "drown, frown." etc.

(3) Pupils discover that words that begin with the same sound, begin with the same letter. Sounds are now to be associated with letters. Now begin teaching the consonant sounds as given in 24 d, using the method given in 24 e and f.

(4) Introduce the phonograms *an, en, et, in, it, un, ut*, as given in 24 g.

(5) If directions have been followed (24 e) there are now sixteen cards containing the eight consonants and eight word-bases. Teach the remaining consonants in the same way, keeping up the drills as described in 24 f.

(6) If any of the phonograms given in 24 j occur in their readers, cards for them may be added to the above.

(7) Word building. The following suggestions will illustrate how the elements taught in the phonic drills are to be employed:

(a) Constant application of what the pupil knows of phonics in making out and pronouncing new words occurring in the reading. See illustration given in 20.

(b) Exercise. The teacher writes a phonogram as *old* on the board. "We will now name all the members of this family we can think of." Teacher distributes consonant

cards containing b, c, f, g, h, m, s, and t. Pupils blend consonant with base and pronounce word. Exchange cards and repeat. Introduce new phonogram.

42. *Spelling.*

There need not be a separate exercise in spelling during the first year.

(1) The spelling exercises already suggested in the course are:

(a) Most of those given for the work in writing. Learning the written form of a word is learning to spell it.

(b) The word building exercises described above.

(2) In teaching the spelling of a word in this grade, the following method should be used: the teacher writes the word on the board, erases it, pupils write from mental image.

(3) Memory spelling. Pupils write from memory, words previously taught as described in (2) above.

(4) Spelling by letter. There should be no oral spelling by letter the first year, except such as is voluntary on the part of the children.

(5) Syllabication, if the vocabulary of the book demands it, should be begun, as described in 24 n.

43 *Occupation and Construction work.*

(1) A pupil should not be kept so long at one form of seat occupation that he tires of it; on the other hand he should not be hurried to a new thing just as he is beginning to feel the pleasure of mastery of the old.

(2) The envelopes or boxes described in 14 , are necessary to keep each pupil's material in order. Suggestions for exercises:—

(a) That given in 15 h. Pupil needs small word-cards containing all words used in the sentences as they are taught. These can be arranged end to end in the desk, or be pasted on paper, the teacher ruling the guide lines.

(b) When a story of several sentences has been written on the board in line statements, each child may be furnished with a set of sentences to put together and "match" the story on the board. (Note—These copies may be made by an upper class as their writing lesson.)

(c) When making the transition from script to print, the lesson as given in the book may be written by some one and cut up. Pupil will match the print, word for word or sentence for sentence.

(d) The tracing of ovals or of large writing, also exercises, later in the year, suggested under independent writing.

(e) Several sets of words having the same phonogram base given pupils to pick out the sets. Copy each set or "family" in a column.

(f) Pupils fit the printed letters together and "match" the lessons in the book. See 21.

(g) The learning of the letters of the alphabet in order can be helped by the seat work. Teacher should have the alphabet both in capitals and small letters at top of blackboard or on a chart. Children arrange the letters in same order.

SECOND YEAR.

14. 1. *Aim.*

A higher degree of mechanical fluency, and the further development of the habits started in the first year.

2. *Important habits of pupils upon which to center effort.*

(a) The habit of self-help to new words by the use of phonics.

(b) The habit of taking in a number of words at a glance.

(c) The habit on the part of every child of not thinking he can read orally until he has the thought.

(d) The habit of reading orally in a natural, conversational tone.

15. 3. *Outline of course.*

(a) Phonics and word building. Exercise three to five minutes daily.

(1) Continue the card-drill in consonant sounds until pupils can give all the consonant sounds promptly, clearly and accurately.

(2) Teach one or two new phonograms from lists given in 24 j or others. Be guided in the selection of phonograms for drill, by the vocabulary of the reading book you are using. Make this exercise prepare for the oral reading. Have individual work, not concert word.

15. (3) *Suggestions for exercises.*

(a) Teacher: "To-day we will spell words belonging to this family." She writes *ang*. Pupils pronounce it and each in turn passes to the board and writes some word belonging to the same "family;" as, *bang*, *hang*, *pang*, *rang*, *sang*, *clang*, *slang*.

(b) After a number of phonograms are known, the teacher may cover the board with words containing these promiscuously arranged. The teacher names a "family" and the pupils pass to the board quickly in succession, and make a ring around or otherwise indicate all words containing that phonogram.

45b. (4) Have pupils use their knowledge of phonics at every step. When the pupil meets with a word in his reading that he does not know, the teacher should show him how to get it. Illustration: The word is mischief. The teacher writes it on the board and syllabicates it by underlining (See 24 n), *mis chief*. Teacher: Both i's say ĭ, (giving sound) and e in second syllable doesn't say anything or is silent." Pupil sounds m–i–s, and pronounces "mis," then sounds ch–i–f, chif, then puts the two syllables together. Later the teacher may not need to put the word on the board, but give one or two helpful suggestions and let the pupil work the word out. (See Sec. 20 for further illustration.) The more painstaking work the teacher does with the phonic work in the lower grades, the sooner pupils get the mastery of this all-important tool for self-help.

45c. (5) Diacritical marking. The teaching of phonograms does away with the need of diacritical marking in the primary grades. Pupils should be prepared as soon as possible to read other books than the school readers, and hence should not be led to rely upon marks to get the pronunciation of words. It is enough for the primary child to know that a certain letter, as *a*, has a number of sounds, and what they are. Then when a new word is met

with, the child can experiment using one sound after the other until one is found that makes a sensible word.

15d. (6) Give exercises such as that suggested in 24 i.
(b) Writing. (Once a day.)

16. (1) Exercises to promote skill.
(a) Those upon the blackboard for arm-control, aiming at greater precision of movement. The same at seats.
(b) Pupil writes at his seat on paper or slate, aiming at greater accuracy of letter form. Just as soon as pupils have developed the power to control the hand, the more careful making of letter-forms can be urged without danger of strain. Get control of muscle first through arm exercises, then train for finer and finer adjustment.

16a. (2) The selection of words for copy or practice should be guided by this principle: Select words that have meaning to the child when heard and are known to him by sight; the muscular effort in writing will then reinforce both associations, and help the reading and the spelling.

16b. (c) The preparatory language exercise. When the thought of the reading lesson requires this preparation,—as when the teacher must explain, show objects or pictures,—there should be a separate exercise of five or ten minutes. When the thought of the reading lesson needs little development, the preparation may be done in the first part of the reading period.
(1) Read introductory note to IV.
(2) Read 24d and e, and adapt it to second grade children.

46c. (d) The oral reading exercise. (Once a day.)

(1) To promote habit two, necessary for fluent oral reading, have occasional drills using the first grade sight reading strips and cards; also with the same aim, use the curtain for side drills.

(2) To promote habit three, as well as two, have pupils in the early part of the year get the thought one sentence at a time, and give the thought, that is, read it orally, looking at the teacher. While the sentences remain short, this can easily be done. When the sentences get longer, the above practice can be abandoned. The expression of the pupil's reading will be an index of his thought. (Read 27c (2), the influence of ideals.)

(3) Remember that the oral reading is the *last act of the child* when dealing with any thought unit. It is the test of his mastery of the form and the thought, for which the other exercises have been preparatory. If the thought is clear, and if habits of mechanical reading have not been started in the first year, the expression will be good.

(4) Amount to be accomplished. Read the hard parts of the first readers begun in the first year. Read the first parts of at least two second readers. Use any supplementary readers or other matter the library may contain.

46d. (e) Spelling. (Once a day.)

(1) Written spelling should predominate in this grade.

(2) Since pupils know the names of the letters oral spelling should also be practiced.

(3) Sources of the words taught.

(a) Words needed for written language work. Peculiar words or those needed only for a special series of language lessons had better be copied by the child, so that his energies may be put upon those that should be fixed in his spelling vocabulary.

(b) A carefully selected list of simple common words, the spelling of which should be made automatic to hand and tongue.

46e. (4) Suggestions about the spelling in the written language work:—

(a) Copying stage. Pupils give the thoughts, the teacher writes the sentences, and the pupils copy.

(b) Independent stage. Pupils think and write. Bad habits of guessing at the spelling of words clear to the understanding but new in form, are apt to develop here. Pupils should be urged to use their knowledge of phonics in judging what the spelling of the words may be. When the teacher is at liberty she should help the pupil to the spelling of all words needed, as described in e (2), first grade. If pupils are early made to feel the importance of having all written words spelled correctly, interest in the dictionary is more easily aroused and its use taught in the fourth grade.

46f. (5) Suggestions about formal spelling.

(a) The reader is not the best source of word lists for spelling. Pupils should not be expected to spell all the words they can read.

(b) The best source for most teachers is a spelling book carefully graded, as to difficulty. The words given for any grade should be those already well-fixed in his speaking vocabulary, and needed for present use in his general written expression. Mark accented syllables and teach pupils the significance of the mark.

(c) An average of ten words a week should be taught. Frequent reviews are necessary. A word is known by a pupil when he can write it, or spell it orally without hesitation.

(6) Oral spelling. Teacher pronounces the word once. Pupil pronounces, and spells. When the word contains more than one syllable the syllabication should be indicated by pausing. (See 24n.)

(7) For treatment of words not phonetic see 24m.

16g. (1) Occupation and construction work.

(1) Independent work by the pupils.

(a) Pupils can use the phonics-tool to dig out new words for themselves, and hence can do something with books. When the assignment has properly prepared them for it, pupils can study their reading lessons.

(b) They can copy and write more; can draw and make with less attention from the teacher.

(2) The teacher must still give considerable attention to seat work, and provide for one or more periods of profitable occupation.

(a) Continue such first grade exercises as have not grown stale.

(b) As the phonogram drills continue, valuable additions should be made to the supply of word-cards for seat work.

The sorting out of words having a common phonogram base, and copying the lists, is helpful to both spelling and reading.

(c) Children like to commit to memory verses and short poems whose thought has been made interesting and clear by the teacher.

(d) The library should have some books adapted to children of this age. There should be at least one period for such reading.

(e) There should be no idle moments. Hand occupation should relieve the periods of study or recitation especially in the last part of the day.

THIRD YEAR.

47. 1. *Aim. Same as for second year.*

2. *The habits to be worked for are the same.*

3. *Outline of course.*

47a. (a) Phonics, at least twice a week.

(1) If pupils have not had the work outlined for the first and second years, and are not able to help themselves to new words, they can profitably take the same drills as are given the first and second year pupils.

(2) If pupils have had the phonic work of earlier grades, less teaching is necessary, but vigorous drills are still needed to give precision in pronunciation. Towards this end the suggestions and exercises given in 25, (Imperfections in speech), may be followed with good effect.

(3) Do not pronounce words for pupils, when they can get the pronunciation by applying their knowledge of phonics.

(4) Word-building and spelling exercise. Teacher names a phonogram, pupils think of word, pronounce and spell orally. Thus: Teacher: "utter." First pupil: "butter, b-u-t-t-e-r." Second, "Flutter, f-l-u-t-t-e-r, etc.

(5) Impromptu language exercises with phonograms. Teacher names a phonogram. Pupil describes the use of some word derived from it without naming the word, and class guesses what it is. Thus: phonogram *ack*. Pupil: "I am thinking of a word that rhymes with *ack*. It names something that has a flat head, and a sharp point and is very useful about the house." Second pupil: "—— is thinking of tack." Second pupil: "I am thinking of a word that is used to describe people who are not careful or energetic; it also describes a rope that is not tightly drawn." Third pupil: "—— is thinking of slack." The possibilities of this exercise as a means of language training will be apparent.

47b. (b) Writing.

(1) See second grade for suggestions as to drill.

(2) *All written exercises should be considered as exercises in writing.*

(a) The written spelling should be carefully done.

(b) The written language exercises should be short so as not to fatigue the pupils or oblige them to hurry.

(c) When exercises are prepared independently by pupil, the teacher should accept only the pupil's best. Do not let the practice of writing during the day tear down what you are trying to build up in the writing exercise.

47c. (c) Oral reading.

(1) See illustrative exercise, Sec. 29.

(2) Read d (3), in course for second year.

(3) Study — 27, much of it applies to the third grade.

(4) Amount to be accomplished. Finish the second readers begun in the second grade. Read the first part of two third readers, and all of some supplementary reader adapted to the ability of the "C" class. The school library should containreading matter suitable for class use. Make individual assignments to pupils from these books and have them prepare to read to the class.

47d. (d) Spelling.

(1) See spelling course for second year.

(2) Use the list for third grade in a graded speller, and drill for mastery.

(3) Bring pupils to a fuller understanding of accent and the marking of accented syllables in words.

47e. (e) Occupation.

(1) There should be a regular seat period for the study of the reading lesson, the same as for doing other things called for by the course.

(2) Time should also be regularly assigned to suitable library reading.

(3) The children write answers to questions given by the teacher, who has put questions obliging the children to read and think carefully; as, "Do you think the boy was right in doing as he did?" "Why?" "What picture do you find in the third paragraph?" "Draw it." Etc.

(4) Have children memorize suitable poems.

NOTE.—Pupils of this age should not be engaged all day with books. There should be at least one period of a half-hour or more, when some form of hand work may be done. This should be of a kind, that, when once started, does not need much attention from the teacher.

Middle Form.

48. 1. *Aim, throughout the Middle form:*
Development of power to learn through reading.

48a. 2. *Habits upon which attention should be centered:*
(1) The habit of thinking what is read, which includes the habit of imaging pictures, of persons, of places, scenes, as well as imaging thought relations.
(2) The habit of passing judgment on what is read, as to truth, worth or beauty.
(3) Right habits in using the dictionary.

48b. 3. *Habits more prominent in the primary form which should not now be allowed to decline.*
(1) That of self-help by means of phonics in getting new words;
(2) That of taking in a number of words at a glance that fluency may be promoted.

48c. 4. The reading exercise should be a daily one throughout the Middle form.

48d. 5. The teacher should often read poetry to the school, thus influencing taste and ideals, and affording the children the pleasure which they always feel in the good reading of good verse.

48e. 6. For suggestions relating to habit 1 above, see IV, all of which the teacher should study carefully.

48f. 7. The second habit, that of passing judgment, will grow in the same atmosphere that promotes the first. Questions that will call for judgment:
(a) What is the most important truth in to-day's reading? What facts do you think worth remembering? Why?

(b) What passages seem to you beautiful in thought? In expression?

(c) What things in the lesson don't you like? Why?

(d) How does this piece compare in interest or value with others already studied?

(e) Which do you like the best? Why? (Allow individuality of taste to manifest itself.)

19. 8. The use of the dictionary. When pupils enter the middle form they should receive systematic training in in the use of the dictionary. There should be at least weekly exercises devoted exclusively to the end of making pupils proficient in the different ways indicated below. If pupils have copies of Webster's High School Dictionary for individual use, the work can be made easier at the start, for fourth year pupils, and more can be accomplished.

19a. (a) Finding words rapidly. Pupils should be taught what an alphabetical arrangement is.

(1) Have pupils during seat period take the words in a certain paragraph and arrange them in alphabetical order with reference to the first two letters.

(2) Let this continue until they can make the right arrangement with reference to first, second, and third letters.

(3) The spelling lists can give them opportunity for further practice.

(4) Have pupils find words in the dictionary. Where there are several dictionaries interest may be excited by timing the competitors. Here comes the teacher's opportunity to show pupils how to handle the dictionary rightly, by turning the leaves down from the top and looking for the guide words, instead

of pushing the leaves back and forth with wet thumb.

49b. (b) Finding the right definition. People use the dictionary to find definitions when they come upon a word in their reading which they do not understand. Hence do not begin this work with lists of unrelated words, but with words that occur in their reading or other lessons.

(1) Word is found in the dictionary. The teacher reads and explains to the class all the definitions given. Pupils listen to the different definitions and determine which one fits best, that is which gives satisfactory completeness to the thought of the sentence. Thus pupils are taught that "Getting definitions" is not taking the first definitions or the shortest one given, but judging which one is needed for the word as used in a particular place.

(2) Formal lists may be used, as those of the spelling lessons. Here the pupil may be impressed with the variety of usages many words have.

(a) To prepare pupils to do this work, the the teacher should plan one or more illustrative lessons; choose some word having a number of usages, give definitions in succession illustrating each with a sentence.

(b) The teacher may write sentences upon the board illustrating each of several definitions of a word, and let pupils study the dictionary and find the definitions illustrated.

49c. (c) Finding the right pronunciation of words. The right pronunciation of a word involves correct elements, syllabication, and accent. If pupils have had the training outlined here for the primary form, this

work will be easily done. If not, special exercises must be devoted to it. These, as well as (a) and (b) above, could profitably take the time of the reading or spelling exercise once a week.

(1) Teaching the key words, at the foot of the di ionary page. The words selected for the key words are those most commonly pronounced correctly.

(a) Pupils must be able to get out of each of these words the element of which it is especially designed to furnish the type; hence he must be able to spell words by sound. Any information the teacher may need about these sounds can be obtained from the Guide to Pronunciation in the first part of the dictionary where all these sounds are described.

(b) Pupil must be able to put the element found into the word in which he is interested.

(c) He must note syllabication and accent. (Call attention to the difference between the hyphen in compound words and the mark between syllables.)

(d) He should then pronounce the word, syllable after syllable, placing accent where it belongs.

(2) Teaching the diacritical markings. As a shorter means of getting the pronunciation of words, the pupil will learn the markings of the letters as given in the key words. It should be remembered that the diacritical marks are simply a convenient means of interpretation, varying in different diction-

aries, and having no educational value except as they help in getting the correct pronunciation of words. The important thing is to teach pupils to use the markings found in the dictionary.

49d. (d) Learning the other resources of the dictionary.

(1) Noted names of fiction.

(2) The pronouncing gazetteer of geographical names.

When authorities disagree in regard to the pronunciation of a geographical name refer to the dictionary.

(3) The pronouncing biographical dictionary.

(4) Pupils may be interested in finding out what their names mean, and so become acquainted with another valuable part of the dictionary.

(5) There may be occasional need of knowing the meaning of some quotation, word or phrase from a foreign language, and thus another interesting section becomes known.

50. 9. The habit of self-help.

After regular instruction in the use of the dictionary begins, oblige pupils to apply what they learn. Thus: It is discovered in the reading class that a pupil does not know how to pronounce a word. Have him find the word in the dictionary and copy it upon the board, syllabicated and marked as given, then pronounce it. This corresponds to the method described in the primary form, by which pupils were taught self-help by means of phonograms.

50a. 10. If pupils are slow in perception, it may not be out of place in this form to have an occasional exercise with the curtain (See 14) to give practice in taking in a number of words at a glance. Another exercise to quicken perception is to turn their attention for a moment to a sentence in the book, and

then call for it. Thus: "Third paragraph, first sentence," (a moment) "Time. Charles, the thought," etc.

50b. 11. In support of point 5, the following quotation is made from the Report of the Committee of Twelve on Rural Schools:

"Poetry must be brought in at every step—the poetry of the farm, the clouds, the winds, the flowers, the fields. The pupil will find that the poet and the artist have embalmed in deathless prose or poetry, the commonest things of earth, air and water, by which he is surrounded. Thin, vapid, sensational, injurious reading would have no place in his life, if all reading were carefully selected in the direction of his aroused, sustained and educative interests." Page 157.

FOURTH YEAR.

51. 1. See what is said about reading matter in 26b and c; also 27c, (1).

2. Read the last parts of third readers begun in the third year and continue with the first parts of one or two fourth readers. Keep the reading easy and read much.

3. Read some supplementary reader adapted to the ability of the class.

4. Assign parts of library books to pupils for preparation and have them read their selections to the class.

5. What reading matter is not well adapted:—

(1) When it gives a pupil nothing new to master.

(2) When it is so difficult that he must plod along under a burden of words not familiar to him in meaning or form.

FIFTH YEAR.

52. 1. Readers and supplementary matter adapted to the ability of the pupils as indicated in course of Fourth Year.

2. "Hiawatha" is a type of masterpiece well adapted to pupils of this grade, provided their work in the primary form has made them proficient in word mastery.

SIXTH YEAR.

53. 1. See suggestions for Fifth Year.

Upper Form.

54. 1. *Aims.*

(1) Greater perfection of the oral reading.

(2) Wider acquaintance with literature.

2. *All the habits named for the lower forms should be well established by the time the seventh school year is reached.*

3. *There should be a daily reading exercise throughout the upper form.* Pupils should be made to understand that they have not "finished reading," when they "have gone clear through the reader," but that there is an unlimited field of *literature*, some larger units of which they should become acquainted with during the time devoted to reading in the school.

4. *Topic V. is especially designed for this form*, to help in the accomplishment of the first aim named above.

54a. 5. *The accomplishment of the second aim* may be assisted by the following suggestions:

(a) As discussed fully in IV., the reading must begin and never be allowed to proceed on any other basis than that of *thinking* on the part of the child. *The life of thinking is true, vivid, imaging.* Whether such imaging or picturing is what it should be, that is, whether the pupil is seeing what the words of the page suggest, must be tested by the teacher through questioning the pupil, or by asking him to draw, or make, or dramatize what he sees. For illustration

take the familiar lines from "Snow Bound' (in the part telling of the father's reminis cences).

"Where merry mowers, hale and strong,
Swept, sythe on sythe, their swaths along
The low, green prairies of the sea."

Do the pupils see the first mower, the man who is reputed to be the best mower in the neighborhood, or who thinks himself the best, start his swath, followed in regular order by his first, second, third, fourth competitor in succession? Do they see the swaths of heavy grass fall, and appreciate the nice choice in the verb "swept"? Do they see how the vigor of the verb, suits the adjective used in describing the mowers, "merry," "hale," "strong". Do they feel anything of the zest of this game of those old-time, farmer-athletes of New England? Is the difference clear to them between our western prairies and the "low, green prairies of the sea?"

This takes time, but it is the only treatment of literature that can be called reading.

54b. (b) The short masterpieces, and extracts found in school readers, as well as longer masterpieces, frequently require that their proper historical or geographical setting be given before their study is undertaken. Thus a careful map of the country is needed for the understanding and clear picturing of the "Lady of the Lake," for it is no imaginary country which Scott makes the scene of the stirring events related in that poem. The same is true of "Evangeline." For "Paul Revere's Ride," a map of Boston and vicinity showing Charleston, the Charles river, Lexington, Concord, etc., will contribute greatly to the enjoyment, and appreci-

ation of the poem. For such a poem as "Evangeline" the historical setting is also needed, and the same is true of "Paul Revere's Ride" and "Miles Standish."

This must not be understood as recommending the use of literature for the purpose of teaching history or geography. It is using history and geography for the sake of the literature. How much of history, or geography, or nature study, or grammar, or discussion of personal experience is legitimate in a reading class? Just so much as is necessary to make the thought of the literature clear, and no more. That the branches thus incidentally made to serve as agents will profit greatly by such use, must be very evident.

510c. (c) Do not spend time in trying to make pupils understand those things in literature that only experience and greater maturity of thought can bring them to appreciate. The teacher should read and explain such passages to the class, trusting that some ideas may be gained by the pupils, and let it go at that. If she succeeds in leaving in each child's heart a love for the piece she has been teaching, time will remedy the deficiencies in understanding; but if pupils leave the study with a feeling of weariness or dislike even though every construction has been mastered, the work must be counted a failure. Literature at its best form is recreation. It must not be classified with the formal studies as arithmetic or spelling or grammar, where "grind" is sometimes necessary.

511. (d) The assignment is a very important part of the work of a teacher of reading. The assignment should:—

(1) Give enough help about the next lesson to remove the discouraging obstacles.

(2) Excite interest in what is coming, and raise problems to be settled by the pupils with the aid of the dictionary.

(3) Not be the hasty "take the next page," but should name the thought unit to be studied.

Since with crowded programs the reading time must be short, it would be well, when the reading matter is difficult, to take the reading period one day for the assignment, and the next day for testing the result of the study and the oral reading.

What teachers want to do is to stimulate energetic and well-directed effort in their pupils. Self-activity is the chief aim in a good assignment.

54e. (e) By carefully preparing according to these suggestions, a skillful teacher may make even the old reader —"finished", read through and dead, take on new life and become a thing of interest. To do this means more work for the teacher; but it is a sort of work that directly promotes mental and spiritual growth. It is a work for which no one reaps such a large compensation as the teacher herself

LANGUAGE.

55. "Most of the forms of our common speech, are things of a type so fixed by repetition as almost to be classed as reflex actions. . . . I find my tongue inevitably falling into its old phrases and repeating almost literally what I have said before."—Prof. James.

56. I. *Aim.*

To help the child form the habit of using the English language correctly.

1. Rouse the child to think and guide him in his thinking.
2. Lead the child to observe what is going on around him.
3. Stimulate the child to tell his thoughts to others.
4. Aid the child in acquiring a working vocabulary.
5. Cultivate a love for the beautiful in nature, literature, and art.

57. II. *General Suggestions.*

1. In language work, "The great difficulty is not in teaching what correct usage is, but in bringing about the incorporation of correct forms into daily unconscious habits." Habits are formed by the repetition of the same act or acts. The teacher should remember that language is not a gift but an acquisition, and that the power to speak and write the English language comes only through much practice in speaking and writing it.

2. When the child first comes to school, he has already acquired two invaluable mental possessions:

a. A store of knowledge consisting of facts: ideas, and images which have come to him naturally through the experiences of his home-life.

b. A stock of words with which he expresses in his own way these facts, ideas, and images.

3. From these two main facts the child's school culture is to have its beginning, and his teacher has before her a two-fold task:

a. She must strive to enlarge and clear up this store of facts, ideas, and images, with which the child comes to her, and make them more full and varied; that is, she must stimulate and direct the growth of his mind and develop his language power through the work she presents to him in his studies in school.

b. She must strive to enlarge and improve his vocabulary; enlarge it by teaching him words with which to express his thoughts; improve it by helping him to make his language clear and definite.

4. The chief means available for developing the child's power of expression are conversation and reproduction. The free and easy conversation between the child and his classmates, or with his teacher, is the most important means, and may be made to yield excellent results, if the teacher is careful in guiding the work. Conversations following the morning talk or the morning story, or growing out of some nature work or picture study, may be the means of leading the child to tell of his own personal experiences, or what he knows of the subject. He may he led to invent or enlarge upon the thought until he gains confidence and fluency. In the Middle and Upper forms this work may easily lead to valuble written composition work.

Reproduction of stories told by the teacher is a more difficult task; but if the right kind of stories are chosen, and the teacher makes careful preparation to use them, excellent results will follow. This reproductive work will furnish material for written composition work in the advanced grades.

5. As ideas should precede words in all language work, so suitable oral expression should precede written work. Pupils who can state clearly what they think or know, and can then write correctly what they have said, have the best results of careful grammatical training.

6. In all oral work have pupils talk to the teacher and classmates. Avoid aimless, disinterested talking by having the pupil talk about something in which he is interested, and about which he knows something to tell to his listeners. Make him feel that he has a message to deliver. He will then feel that he is called upon to put his thoughts into the best language of which he has command in order to make his hearers understand his story.

7. The teacher should know the fundamental laws of composition in order to be able to guide her pupils.

a. *The law of Unity* guides in the sifting and selecting of material so that each part contributes its share to the central thought of the sentence, paragraph, or whole composition.

b. *The law of Selection* requires that only such things shall be chosen as are necessary to the clear, forcible presentation of thought.

c. *The law of Order and Arrangement* requires such a logical presentation that the thoughts shall not be confused one with another, but shall enable the hearer or reader to get a clear and progressive mental picture of the story as it is presented.

d. *The law of Proportion* demands that each thing shall have its due share of attention.

ɔc. III. *Kinds of language work which should be provided for all forms.*

1. *Constructive*, which has to do with the use of language effectively for the accomplishment of a given purpose. It is oral or written composition. The conversation lessons, in the primary form, and the oral and written composition work, in the middle and upper forms, are designed for this purpose.

2. *Technical*, which includes all phases of grammatical accuracy. In the primary and middle forms this work is largely in correcting errors in the pupil's oral or written language without giving the laws of grammar covering such usage. Here the teacher's knowledge of grammar is of practical use. "It is constant use and practice, under never-failing watch and correction, that makes good writers and speakers; the application of direct authority is the most efficient corrective. Grammar has its part to contribute, but rather in the higher than in the lower grades. One must be a somewhat reflective user of language to amend even here and there a point by grammatical reasons; and no one ever changed from a bad speaker to a good one by applying the rules of grammar to what he said." In the upper form the pupils should be taught the fundamental laws governing the use of the English language, and be taught to apply these laws to his own language.
3. *Interpretative*, which aims to open the mind to a realization of the power of language. In the primary and middle forms this work may be done in connection with the stories and poems told to the children by the teacher, and reproduced by the children; in the nature study lessons, and in the conversation lessons about the pictures studied. In the upper form the work will assume a more formal shape in the work with literature and in the further study of pictures.

COURSE OF STUDY.

Primary Form.

59. IV. *First year.*

A. Conversational lessons on familiar experiences and about familiar things.

B. Reproduction of stories told or read to the children by the teacher.

C. Invention of oral stories suggested by pictures, nature study, etc.

1. Drawing on blackboard or paper to illustrate stories told.
2. Exercises in the use of "a" and "an" with nouns; as, an apple, an orange, an eagle, a tree, a man, etc.
3. Use of common verbs to agree with singular and plural nouns; as, "is," and "are," "was" and "were."
4. Correct a list of selected errors; as "I aint", "he don't", "hadn't ought" etc.
5. Use of capital letter at the beginning, and period at the end of sentence taught incidentally in connection with work from blackboard in reading.
6. Copying of words and simple sentences chosen by the teacher from the reading and other lessons.

60. V. *Second year.*

1. Continued oral work with stories and pictures begun in the first year.
2. Simple written composition work begun. Compose and write simple sentences based on some of the work done in school, or on some personal experience of the child in school or at home.

3. Knowledge of the use of capital letters extended. This work can be done in connection with the work in reading.
   a. in beginning sentences and proper names;
   b. the first word in lines of poetry;
   c. in dates, days of the week, and months of the year;
   d. in addresses and titles.
4. Teach correct use of "this" and "that", "these" and "those"; as, "this kind of apple", "that sort of men"; "these kinds of cloth" "those sorts of apples."
5. Teach correct use of common adverbs; as, "slowly", "quickly", "well."
6. Teach the correct forms of pronouns after "is" and "are", "was" and "were"; as, "It is I"; "It was she."
7. Teach the use of quotation marks in connection with the work in reading, and in the story work.
8. Notice the use of punctuation marks in the reading lessons.
9. Teach some of the common abbreviations met with in the other work of the school.
10. Memorize choice selections from prose and poetry.
11. Copy memorized verses and proverbs, and give careful attention to the use of capitals and punctuation marks.

61. VI. *Third year.*

1. Oral work with stories and pictures should be continued. Longer stories may now be used and the children held more closely to exact language in reproduction. More critical work can now be done with the pictures.

2. Short written exercises.
   a. Work out with the children a series of simple related sentences from a familiar story or from some other lesson.
   b. Write these sentences on the blackboard. Call attention to the spelling, capital letters, and punctuation.
   c. Have the children copy these sentences correctly.
   d. Later help the children combine these sentences into complex or compound sentences, and then into a paragraph on the blackboard.
   e. Have the children copy the paragraph.
3. Children write short exercises on the blackboard, drawn from:
   (a) stories told by the teacher and reproduced by the children;
   (b) nature-study lessons, and excursions;
   (c) home geography descriptions;
   (d) the reading lesson.
4. Review work with pronouns, verbs and adverbs, and extend this work.
5. Teach the use of the apostrophe to show ownership. Examine lessons in readers to find illustrations of this use. Dictate exercises calling for this use of the apostrophe; as, John's knife, Mary's doll, Charles's book.
6. Extend the list of abbreviations.
7. Teach spelling and use of the following homonyms:

   rode road rowed
   sail sale
   there their
   to too two
   no know
   pail pale

whole hole
bough bow
pear pair pare
week weak
won one
vale vail veil

8. Have children commit to memory at least five good poems during the year.

62. VII. *Suggestions as to method.*

1. The first step to be employed by the teacher in teaching language is by means of conversations (IV.,1) with the pupils on suitable subjects suggested by the incidents of every day life in school and out of school, as, "My Doll," "Our Dog," "What I saw at the Circus," "What I got for Christmas," "Where I went on the Fourth of July," "What I like to play," etc. Pupils should be encouraged to talk freely. "Self-expression is natural to the child; it is a form of self-activity in which he delights, providing we touch his real interests, or wisely tax his ingenuity." In correcting errors, the teacher must be careful not to discourage the child; he must not be nagged. At first the teacher will try to correct by example, finding unsuspected openings for substituting the correct for the incorrect form which the child has used, thus winning the child's ear to the right expression, and leading him to use unconsciously the correct form. While the language used by the teacher should be somewhat in advance of that used by the child habitually, it should at all times be within his comprehension.

2. The second effective means of teaching language is the reproduction of stories in prose and

verse (IV., 2). In the first year the stories should be simple ones that appeal to little children. With children of foreign parentage, who are just learning to speak English, stories like the "Little Red Hen," "The Old Woman and Her Pig," "The House That Jack Built," "The Story of the Three Little Pigs," and "The Three Bears," because of of the repetition of common words and phrases, are especially helpful in aiding the child to acquire a vocabulary. In later years longer and more advanced stories selected from fairyland, mythology, fiction, history, biography, and literature may be used to good advantage in language work, and at the same time give the child a fund of valuable information.

To secure the best results the stories should be told, not read, to the children. To read a story with the covers of a book between the face of the teacher and the faces of the listening children falls far short of producing the best results. The teacher's every facial expression as she tells an interesting story is an element of vital interest to the listening child. The story becomes more interesting and real because of the living part that the teacher takes in it, and if she is in full sympathy with it she will make the children feel that the story is worth learning to tell to others.

After selecting the story she is to tell, the teacher should become a master of it. She should read it over and over again until its facts and episodes are perfectly familiar, and she can reproduce it easily without

the strained effect of a recitation. She must have the central thought of the story so well in mind that, if the children fail to grasp any idea in it, she can call up some familiar object or experience to make the meaning clear, without herself becoming confused in telling the story. For it is after all by the teacher's manner of speech that she will do most to cultivate right habits in her children. The fundamental need in story telling is simplicity and clearness of thought and language combined with a pleasing and attractive manner. The teacher must be strict with herself in this matter and see, while preparing the story, that the language is clear and easily within the comprehension of her children.

The right presentation of the story may demand many things besides language. Pictures, blackboard sketching, gestures, facial expression, and dramatic impersonation, may all be needed to produce the right effect. The teacher should plan carefully beforehand which of these helps she is going to employ, and she will find it advisable to rehearse the whole matter before going before her class.

When the teacher has her story so well in hand that it partakes of the nature of a personal experience, she should tell it to her pupils, simply, directly, dramatically and with zest, using language so simple as to make the word pictures vivid enough for each little listener to grasp. One can tell on looking into the faces of children whether or not they are following the recital of a story, and the teacher can in different ways attract the attention by questions or appropriate gestures.

As to reproduction, any story that is worth telling to children should be retold by them. The main purpose in telling the story is to have the children reproduce it. We can know only by their expression what impressions they have gained, and it is through their desire to express that they gain power to talk. It may be necessary to tell the same story two or three times before calling upon the children to retell it to the teacher or to their classmates.

In getting the children to tell the story, the teacher may ask the children questions about the way in which the story began; how they would tell it at home; or she may start to tell it and gradually work up an interest on their part to try to help her tell it. After a little experience, both the teacher and the children will find the story work some of the most delightful as well as most profitable work in school.

While the children are telling the story, the teacher should be on the lookout for errors in the use of English, some of which she may correct by suggestion after the child is through talking. He should not be interrupted while he is telling the story to correct errors in the use of language. Such interruption destroys the effect of the work and is apt to make the child timid about trying to talk connectedly about anything before the teacher. The teacher should make a list of the common errors. This list should form a basis for future language work. (IV., 4.)

Stories suitable for the Primary Form.

63. *First year.*

The Story of the Three Little Pigs.
The Story of the Three Bears.
The Old Woman and Her Pig.
The Little Red Hen.
The House That Jack Built.
The Ant and the Dove.
The Fox and the Crow.
The Fox and the Grapes.
The Ugly Duckling.
How the Woodpecker Got His Red Head.
The Story of Hiawatha's Childhood.

64. *Second year.*

Little Red Ridinghood.
Cinderella.
Little One Eye, Little Two Eye, and Little Three Eye.
The Anxious Leaf.
Puss in Boots.
How the Little Boy Got His Shirt.
Where the Christmas Tree Grew.
The Street Musicians.
Whittington and His Cat.

65. *Third year.*

The Wooden Horse.
Story of William Tell.
Ulysses and the Bag of Wind.
Pied Piper of Hamelin.
The Holy Night.
The Story of Jacob.
The Christ Child.
The Story of the Pilgrims.
The Story of Columbus.
The Story of John Smith.

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66. 3. Pictures furnish another helpful means of presenting language work. (IV., 3.) In order to make the right use of pictures, the teacher must have a definite purpose in mind, and definite means at hand to accomplish that purpose. If she chooses her picture with care, plans definite questions, and has definitely in her own mind what she wants the child to gain from the study, a picture may be made to serve in developing a subject, in suggesting new thoughts to the pupils, and afford an opportunity for the expression of the knowledge gained.

The purpose of the lesson on a picture should be to lead the children to observe, to think, and to express their thoughts. Any lesson that does these things contains the elements of a good lesson. The teacher must keep constantly in mind that the purpose of language work is to get the child to talk; to use language, but picture study will do more than this, it will awaken a love for and an appreciation of the beautiful in art.

The simplest picture lessons are those in which the child describes what he sees in the picture. He will at first merely state what he sees. ("At the Watering Trough," Dagnan-Bouveret) "I see a boy," "I see two horses," "I see a watering trough." These statements show that he sees the picture as a collection of isolated objects and not as a group. By questioning the teacher should lead the child to see the relation of the different objects, one to the other, and to talk about the picture as a whole. The statements will at first be in simple sentences which the teacher will help the children to arrange and combine into a connected statement. Later in this work, the children may write these sentences on the blackboard as a lesson in written composition.

A picture may also be used as a basis of an imaginary story. The order of work in such lessons should be, first, observation; second, thought; third, imagination; and fourth narration. In order to make the work valuable, the teacher must decide upon the line of story she wishes to develop from the picture, and then carefully hold the children to the story she has in mind.

Unless she does this their imagination will oftentimes lead them to ramble far from the story upon which they are working. After the story has been worked out a sentence or two at a time by the different children in the class, they should be called on to tell the whole story in connected form. In the middle and upper forms imaginative stories from pictures may furnish material for written composition work.

The pictures for these lessons should be selected with care. They should contain few objects, in order that the description may be centralized and complete. The subject should be one in which the children will be naturally interested; not a landscape or a village, but a scene which represents life and action,—child-life, if possible. It should suggest good thoughts and be artistically good. The pictures need not be expensive. Excellent material for this work may be found in the Perry pictures, or the Brown pictures at one cent each.

67. *A suggestive list of pictures for use in the primary form:*

The Gleaners, Millet.
Feeding Her Birds, Millet.
The Churning, Millet.
Shepherdess, Millet.
The First Steps, Millet.
Picture of the Puritans, Boughton.
The Madonna of the Chair, Raphael.
The Sistine Madonna, Raphael.
Saved, Landseer.
The Pet Bird, Meye von Bremen.
Can't You Talk, Holmes.
At the Watering-Trough, Dagnan-Bouveret.
The Haymakers' Rest, Dupre.
The Cat Family, Adam.
The Sheepfold, Jacque.
The Melon-Eaters, Murillo.
The Grape-Eaters, Murillo.

68. 4. Much of the technical language work called for in the Primary Form may be done in connection with the conversation lessons, the story work, the work with pictures, and with the work in reading.

68a. The teacher should strive for good results in oral work at first and be in no haste to get the children to "write compositions." The failure to do good work in composition is attributable to the following causes:

1. too much written work is asked for,
2. it is too labored, because we press for an excellence in form not to be expected from the young,
3. the compositions are often too long; a sentence is long enough for the first year; a short paragraph at the end of the third year,
4. wrong topics are chosen, depriving the work of reality and interest to the child.

If the teacher follows the outline of the Course of Study she will avoid these errors. In the beginning we should expect from children, rough, free, hearty work in writing. This does not mean slovenly careless work; but it does mean sincere, childlike work.

(Chubb, pp. 106–107.)

68b. Children should be encouraged to sketch on blackboard and paper to illustrate the stories told in language work. Much of this work will of necessity be crude, but the use of the hand in doing this kind of work will help greatly in giving the child facility in the use of his hand in later writing lessons, and it also teaches him a fruitful means of expression.

68c. In fixing correct forms of expression, the eye as well as the ear and vocal organs, should be made familiar with them. To those pupils who remember best in visual images, this will be especially helpful. As soon as childrer are able to

read well from the blackboard, exercises similar to the following should be made the subject of frequent concert and individual drills:

an apple,
an orange,
a knife,
a book,
a pen.
Is it I? Yes, it is I.
Is it they? No, it is not they.

68d. Conversation lessons should be arranged between pupil and classmates or teacher calling for these and other expressions which give trouble; as

Is that you John? Yes, it is I.
Teacher: John give Henry the book.
John: I gave Henry the book.
Henry: John gave me the book.

The following general plan to aid the pupil to form the habit of correct usage has been recommended as sound in principle and serviceable in practice:

1. Provide for exercises that require correct use of a form commonly misused.
2. Call attention to the right form to be used.
3. Secure repetition of the correct form.

In later work, in order to make the habit of correct usage an increasingly intelligent usage, the teacher should:

1. Ask pupils to tell what form has been used and how it was used.
2. Lead to a simple statement of a direction for its use.
3. Require further repetition to fix the habit.

68e. Frequent lessons will be required to master the homonyms which are met with in all of the work in the different grades. There is no need to anticipate the use of these words before they are met with in some lesson. Then the attention of the children should be called to them and they may be made

the occasion for a drill exercise, somewhat as follows: "In our lesson today we find three words which sound alike, but are spelled differently and have different meanings". "Do you remember what they are?" "Rode, road and rowed."

The teacher may now put the words in sentences on the blackboard, illustrating their different uses.

I rode my bicycle to school this morning.
I rode in a carriage yesterday.
The road in front of the school house is dusty.
The team came along the road.
I rowed a boat on the lake last summer.
My papa rowed the boat while I fished.

Have the children learn the spelling of the words, and write them in sentences on the blackboard. Drill on them often so that the children may become accustomed to writing the words correctly.

69. 5. The poems taught to children may be made a source of pleasure and strength to the children in their language work. No poem should be taught for its rhythm alone, although the rhythm should furnish much enjoyment, but every line should be full of meaning to the child. The teacher should repeat the entire poem to the children emphasizing the expression.

The word pictures in the poem should be made clear to the child while he is learning it, and these pictures should be called up in his mind every time he repeats the poem. Do not teach the poems line by line, but thought by thought, and help the pupil to give expression to the thought when he repeats the poem. Review the poems learned often enough to keep them in mind.

69a. A Suggestive List of Poems for the Primary Form.

The Tree. Bjornson.
The Owl and the Pussy Cat. Lippincott.
Hang up the Baby's Stocking. Miller.
Stars and Daisies. Sherman.

September. Jackson.
Thistledown. Buckram.
The Ferns.
Autumn Fires. Sherman.
Kris Kringle's Travels. Best.
The Bright Side. Macdonald.
Twinkle, Twinkle, Little Star.
If I Knew. Myman.
Minnie and Winnie. Tennyson.
Lady Moon. Houghton.
The Cow. Stevenson.
Clovers. Brown.
Seven Times One. Ingelow.

6. The committee of fifteen emphasizes the importance of the study of plant life in the elementary schools, and the committee of ten devotes much space to a consideration of this phase of nature work. Under the course of study in nature work will be found many suggestions to the teacher who is on the lookout for material for language work.

7. The work outlined in History and Geography for the Primary Form will afford excellent material for language work.

Middle Form.

70. *First Year.*

1. Continue oral work with stories, pictures, and poems begun in the Primary Form.
2. More extended work in written composition may now be undertaken. The written work should follow and be based on the oral work.
3. Review the work with pronouns, and teach the correct use of "who," "which," and "that" as conjunctive pronouns.
4. Give a series of lessons including the homonyms taught in the Primary Form. Teach other homonyms.

5. Begin the work of developing the chief rules for forming the plurals of nouns.
6. In conversational lessons, use sentences calling for the correct use of "as" and "like."
7. Have frequent exercises calling for the use of irregular verbs.
8. Continue the work with the apostrophe, teaching its use in common contractions, as "o'clock," "'tis," "don't," etc.
9. Begin work with synonyms and antonyms, as "large—big—great;" "tiny—little—small;" "proud—humble;" "weak—strong." Have pupils frame sentences illustrating these similar and contrasted meanings.
10. Letter writing begun. Special attention should be paid to form of letter.
11. Memorize choice selections from prose and poetry. Have these selections and those learned in the Primary Form recited often, and have pupils write them from memory.

71. *Second Year.*

1. Oral work in connection with reading, history, geography, nature study, and other lessons. Work with stories, poems, and pictures should be continued.
2. Written composition work based on the oral work. Pupils should first learn to talk freely. Grace of expression will follow.
3. Continue work with punctuation marks. Teach the use of the interrogation and exclamation points.
4. Give frequent dictation exercises in which special attention is paid to form, spelling, and punctuation.
5. Continue work with rules for the formation of plurals of nouns.
6. Letter writing continued. Familiar letters. Folding paper for insertion into envelopes. Addressing envelopes.

7. Review work with irregular verbs and their parts. Have frequent oral and written exercises calling for the use of these verbs.

   Give special attention to the verbs that give the most trouble; as, "lie" and "lay;" "sit" and "set;" "be," "do," "see," "go," "fly," "get;" and the auxiliaries "shall" and "will," "may" and "can." Make many sentences to illustrate and confirm the various uses of these verbs.
8. Continue work with homonyms and synonyms. Frequent exercises to teach the correct use of these words.
9. Extend list of abbreviations.
10. Careful attention should be given to common errors heard in and out of school.
11. Care should be taken to prevent the forming of careless habits in the pronunciation of words like "such," "just," "catch," etc.
12. Continue to have pupils memorize choice selections from literature. Longer and more difficult selections may now be chosen. Careful attention should be given to the expression of thought.

72. *Third Year.*

1. The Committee of Twelve on Rural Schools recommends that a text-book of language lessons be used in order that a course of teaching may be carried out effectually through the upper forms. During this year emphasis should be placed upon the laws involved in the construction of the English sentence. Technical grammar in conjunction with a study of literary style should constitute the greater part of the work in the Upper Form. Special emphasis should be placed upon dictation and composition exercises with drills to introduce the pupil to the formal study of the sentence.

2. The sentence.—Teach that the sentence is the form in which a thought is expressed. Combine simple sentences into complex and compound sentences. Have the children notice the sentences which they use. Examine the sentences in the readers and in library books.
3. Continue the work in punctuation in connection with the study of sentences. Note some of the more common uses of the comma, colon, and semi-colon.
4. Subject and Predicate:—Teach the terms subject and predicate in connection with sentences of the children's own composition. Have pupils find simple subject and predicate from their reading lessons, especially in prose selections.
5. Develop definitions of noun, pronoun, verb, and adverb, and review the work done with these parts of speech. Select lists of these parts of speech from the pupils' composition work and from the text-books used in other branches of study.
6. Have pupils talk and write freely from outlines made by the teacher. Help pupils to make outlines from which to talk and write.
7. In making the outlines for and with the pupils, the teacher should develop the idea of the paragraph. Each topic or division of the outline needs a separate paragraph, and the matter of the paragraph should be arranged logically.

   The pupils should be led to examine the paragraphs in their readers to find what constitutes a paragraph; the subject of the paragraph; the topic sentence of a paragraph; and how the matter of the paragraph is arranged. Make outlines of numerous selections from the readers and from library books. Use these outlines from which to write. Compare the composition with the original, and note the defects.
8. The following points should be emphasized in written composition work: proper use of capital letters,

spelling, punctuation, paragraphing, correct use of words, correct form of sentence, logical arrangement of matter, division of words at the end of a line. Do not call for long compositions. Quality not quantity should be the teacher's motto in all written composition work. Better two paragraphs well written than ten paragraphs full of errors.

9. Letter Writing.—Continue the work already begun. Write friendship letters, business letters, forms of invitations, notes of acceptance, and notes of regret.

10. Continue the work with synonyms and antonyms. Help the pupil to select the best words with which to express his thoughts. Encourage a language pride.

11. Continue the work of memorizing choice selections from literature.

72a. 12. Stories suitable for use in Middle Form language may readily be found in the school readers, the library books belonging to the district, and such other sources as are available for the teacher's use.

Upper Form.

COURSE OF STUDY.

73. 1. In this form the pupils should use a good text-book as the basis of technical language work.

2. The recitations in every subject in school should furnish opportunity for oral language work. The teacher should insist upon the pupil's expressing his thoughts clearly and concisely. Loose, incoherent sentences should not be tolerated. The language used by a pupil in his recitation will be governed largely by the attention given it by the teacher.

3. The regular work of the school will offer opportunity for written work besides the written work based on the stories given for the purpose. Original stories calling for invention and imagination on the part of the pupils will add interest to the work. The pupils should be taught to make outlines for their own work, and use these outlines in their written work.

4. Teach sentence structure, and simple form of sentence analysis.

5. Teach the parts of speech, and show that the use of a word determines the part of speech to which it belongs. Most grammatical questions can be answered only by discovering the use of the word in expressing the thought. Taught with this thought in mind, grammar becomes as much of a reasoning subject as arithmetic, and will appeal to pupils in the same way. There is no good reason why a boy should love arithmetic and hate grammar.

6. Teach the principal rules of syntax and give many examples to illustrate. Give frequent reviews and drills on the troublesome forms of verbs and pronouns. Help pupils to correct their own mistakes. Encourage a language pride.

7. Do not depend upon the exercises in the text-book to furnish material for work with words and sentences, but use the material in the readers and other books. Teach the pupils to use their knowledge of grammar in interpreting a piece of literature.

8. The teacher must be on the alert to make the study of grammar and composition a live, invigorating subject. Unless there is life and interest in the recitation, the pupils will get little or no good from the study of the subject.

SOME SUGGESTIVE EXERCISES FOR UPPER FORM LANGUAGE WORK.

74. 1. *Book reviews.*

Frequently have pupils give reviews of books which they have read. Let these reviews be given before the class or before the whole school. The teacher should go over the work with the pupil first to help him shape his material. If the review is a long one, encourage the pupil to place an outline on the blackboard from which to talk.

2. *Talks.*

Have the pupils prepare short talks to give before the class, or the school. Encourage the pupils to select subjects of general interest, and let them make simple outlines from which to talk. Current topics, nature study, agriculture, history and geography furnish excellent material for these talks.

3. *Original work.*

Use only subjects about which the children know something, or in which they are interested. Have them describe things and events of local interest. Local history affords an opportunity for some excellent work of this kind. The teacher may suggest incidents of a story and have them develop it, or she may read a story as far as some very interesting part, and then allow the pupils to write the conclusion of the story as they would like it to end.

4. *Letter writing.*

Review parts of letter, folding superscription, etc. Give drill exercises on these. Take up the different forms of correspondence, using the models furnished in the text-book. Pay especial attention to the writing of a business letter. Teach that a business letter should be characterized by clearness and directness. Teach the proper paragraphing of a letter. The discussion of each topic should form a separate paragraph.

5. *Paragraphing.*

The practice of preparing outlines for oral and written composition work will assist greatly in teaching paragraphing. Study the paragraphing in the reader, history, and in the library books. Notice the arrangement, margin, indentation, and general appearance of the paragraphs in these

books. Work out an outline with the pupils, indicating the paragraphs by topics. Have the pupils write from the outline paragraphing as indicated.

SUGGESTIVE LIST OF MATERIAL FOR UPPER FORM WORK IN LANGUAGE.

75. The text-book used will be suggestive in many ways, so that it is not necessary to make the list here so long as in the other forms.

Stories:

Robin Hood.
William Tell and the Apple.
Alexander and Bucephalus.
Narcissus.
Diogenes.
Bell of Atri.
King John and the Abbot.

Pictures:

Sir Galahad. Watts.
Christ and the Doctors. Hoffman.
Fighting Temeraire. Turner.
Oxen Going to Work. Troyan.
Horse Fair. Bonheur.
Windmill. Ruysdael.

Poems:

American Flag. Drake.
Chambered Nautilus. Holmes.
Selections from Sir Launfal.
Selections from Snow-Bound.
Selections from Evangeline.
Ladder of St. Augustine.
The Rainbow. Wordsworth.
The Cloud. Shelley.

Note.—Where pupils have not had the work outlined in the middle form before taking up this form's work, many of the stories, pictures, and poems suggested under the Middle Form may be used to advantage by pupils of the Upper Form.

ARITHMETIC.

76. Arithmetic is of two kinds, pure and applied; it consists of abstract processes and concrete problems. The aim in teaching the former is to train for the acquisition of skill, viz.: accuracy and rapidity in computation, in teaching the latter to develop mental power.

I.—Primary Form.

77. The purpose of the work in the primary form is to teach the fundamental facts of number (viz.: the tables), to develop mental power in applying these facts in practical problems, and to acquire skill in some of the fundamental processes of number.

COURSE OF STUDY.

78. 1. Oral lessons with objects to teach the smaller numbers and their relation to one another.

2. To count to one hundred or beyond; reading and writing of numbers begun.

3. The addition and subtraction tables. The making and solution of concrete problems involving applications of these tables.

4. The multiplication, division and factoring tables. The making and solution of problems involving applications of these tables.

5. Such portions of tables of denominate numbers as may be used in the operations indicated in No. 4.

6. Squares, rectangles, and areas of the same; cubes, rectangular solids, and volumes of the same; right and oblique angles; perpendicular, oblique and parallel lines, and triangles.

7. The making and solution of problems involving two or more operations of Addition, Subtraction, Multiplication and Division. Do much purely mental work.

SUGGESTIONS TO TEACHERS.

78a. The following material is essential for teaching number with facility in the primary form: Foot rules marked to quarters or an eighth of an inch, scissors, paste-board inch squares, at least one hundred inch cubes, a box of small rubber bands, splints, yardsticks, pint, quart, peck and gallon measures, cards about 2½ by 4 inches for table work, and a quantity of sand, bran, corn or some other convenient material for measuring purposes. Each pupil should have his own foot rule and at least forty card-board inch squares. The above material should be regarded as minimum in amount and variety.

79. It is quite generally admitted now that no formal recitations in arithmetic should be conducted the first year of the primary form. The pupil's experiences in play and in his other work in the schoolroom, if a little ingenuity is exercised by the teacher, are sufficient to give him such a working appreciation of number, as, with his greater age, will enable him to do nearly, if not quite, as much during the second year as during the first two years in formal number work. If, however, class work is begun the first year nothing further than numbers 1 and 2 in the Course of Study should be attempted.

80. It is better to have each pupil in the class handle the illustrative objects, than to have them watch the teacher do so. This can be more successfully accomplished if the pupils stand or sit about a table.

81. Determine first what children know of numbers. Have them handle objects to learn numbers and their relations to each other. They should discover in conversation with the teacher, and by handling the objects, measuring, etc., the simple facts of addition, subtraction, etc.: as, 2 and 3 are 5, that 6 less 2 is 4, that two threes are 6, that one-half of 6 is 3, that 6 contains 2 threes, etc. Many simple problems involving number less than ten can be solved with the objects. The purpose of this work is to give the pupil a real knowledge of numbers and their fundamental relations. These relations are

more truly impressed through the pupil's drawing and making things than through anything the teacher may do or say.

82. The children should early learn to count to one hundred or one thousand. To simply name the numbers rapidly in order is sufficient at this time. The purpose here is to learn the law of the nomenclature of the numbers. Most children will learn this in their play if the hint is given with suggestions of competition. Counting by twos with odd or even numbers, counting by tens and fives can easily follow, all furnishing much sport to the children if properly encouraged. The writing of the numbers should follow the counting. As interesting seat work, this may relieve many a weary hour of the pupil's time.

83. The order of the work in any given subject is an important matter. The order should be determined by the logical dependence of the various parts of the subject.

Order of Work for Addition.

84. *Step I.* The addition table.

(a) By the addition table is simply meant the 45 combinations of the digits two at a time as, $+\ \begin{matrix}7 & 9 & 8\\ 5, & 2, & 7,\end{matrix}$ etc.

(b) In teaching the table give short advance lessons, say a combination or two, but drill so thoroughly upon all previously learned combinations that it is impossible to forget any of them.

(c) A combination, as $\begin{matrix}6\\ 5,\end{matrix}$ is known only when the pupil, upon seeing it, thinks *eleven* just as, if properly taught, in reading he thinks of an apple when he sees the word symbol. The symbols 6 and 5 of the combination, $\begin{matrix}6\\ 5,\end{matrix}$ should not enter into consciousness any more than the letters of the word apple. The idea *eleven* in the one instance is wanted and the idea *apple* in the other.

(d) The drill for the mastery of the table should be mostly written, rather than oral. (For suggestions for drill see 85 (b), 86 (b), 89 (b), and suggestions for drill upon word forms and phonic elements in reading.)

85. *Step II.* The addition at sight of a number of two digits to a number of one digit; as,

$$\begin{array}{cccc} 23 & 87 & 49 & \\ 4, & 5, & 6, & \text{etc.} \\ \hline \end{array}$$

(a) This is a two step process and depends upon a memory of the combinations of the addition table. The pupil in the first illustration sees $\begin{array}{c}3\\4\\\hline\end{array}$ and thinks *seven*, then *twenty-seven*. In the second illustration, he sees $\begin{array}{c}7\\5\\\hline\end{array}$ and thinks *twelve*, then *ninety-two*. The purpose is not to memorize all possible combinations in this step, but to get results by quick recognition of the combinations of the addition table.

(b) As soon as a given combination of the table is known all the combinations involving it to one hundred should be taught, as $\begin{array}{ccccc} 4 & 24 & 74 & 44 & 64 \\ 3, & 3, & 3, & 3, & 3, \\ \hline \end{array}$ etc. This furnishes an excellent means of drill upon the tables. To assign an application of Step II before the table combination involved is known simply drives the pupils to count their fingers or to other cumbersome devices.

86. *Step III.* The addition of a column.

(a) As this is but a series of applications of Steps I and II skill in adding a column depends upon the quick recognition of the combinations in Steps I and II.

(b) The column can be introduced while Steps I and II are being learned if the sum of the column does not exceed the sums of the largest combination learned, as if $\begin{array}{c}8\\5\\\hline\end{array}$ is the largest combination yet learned, such columns as the following

$$\begin{array}{cccc} 4 & 3 & 4 & 4 \\ 3 & 1 & 2 & 3 \\ 2 & 5 & 3 & 2 \\ 3, & 2, & 2, & 4 \\ \hline \end{array}$$

can be given. These can be added in two steps, if the table combinations involved are known, as in the first

column adding down, one sees seven and five to be added, in the second four and seven, in the third six and five, and in the last seven and six. The pupil in adding aloud says seven, twelve; four, eleven; six, eleven; and seven, thirteen, respectively. Do not point to the figures in the column while the pupil adds for the same reason that one should not point to the words while a pupil reads. This step furnishes excellent drill for training upon the addition table.

87. *Step IV.* The addition of two or more columns.

The carrying process can be mastered in Step II or in simple examples like,

$$\begin{array}{rr} 29 & 48 \\ 34, & 87 \\ \hline & \end{array}$$

The numbers can be illustrated by bundled splints, by representing the numbers by the fingers of both hands, etc.

For Step V in addition see 102 (b).

88. More or less in each day's lesson, while the process work is being done, problems to train the reasoning powers should be given. The work from day to day should be about equally divided between the two kinds of work. (Art. 76.)

Order of Work for Subtraction.

89. *Step I.* The subtraction table.

(a) By the subtraction table is meant all the various subtractions in which the subtrahend and remainder are digits, as each combination of the addition table produces two elements of the subtraction table, except that nine of them produce only one each. There are eighty-one elements in the subtraction table.

(b) As the subtraction table is based upon the addition table, the most economical time to learn an element of the subtraction table is at the time the combination of the addition table, from which it is derived, is learned, as when $\begin{array}{r} 5 \\ 3 \\ \hline \end{array}$ is learned, $\begin{array}{r} 8 \\ -3 \\ \hline \end{array}$ and $\begin{array}{r} 8 \\ -5, \\ \hline \end{array}$ should be learned. In this way the subtraction table may serve as a drill upon the addition table and vice versa.

(c) The most economical way to learn the subtraction table is to think, What can be added to the subtrahend to make the minuend? as in $\begin{array}{r} 9 \\ -6, \\ \hline \end{array}$ to think, 6 and what make 9? in $\begin{array}{r} 15 \\ -7, \\ \hline \end{array}$ 7 and ? make 15? By this way of looking at it the energy expended in learning addition is more easily utilized and less time is needed to learn the subtraction table.

90. *Step II.* The subtraction of two numbers in which each order of the subtrahend is less than the corresponding order of the minuend; as,

897	574	6724
235,	421,	1312

(a) To solve these it is sufficient if the pupil recognizes the various elements of the subtraction table in order from the right to the left, and expresses the results under the corresponding elements. The aim here is to train for skill in computation, not for reasoning power. (Art. 76.)

91. *Step III.* The subtraction of any two numbers, as

546	624	8152
219	362,	4627

(a) The symbol $\begin{array}{r} 6 \\ 9 \\ \hline \end{array}$ should suggest $\begin{array}{r} 16 \\ -9 \\ \hline \end{array}$ of the subtraction table. The pupil can be told that the 1 ten of the 16 is taken from the 4 tens of the 46. He can now see that in the next order of the minuend he has but 3 tens, hence the next step is $\begin{array}{r} 3 \\ 1, \\ \hline \end{array}$ etc.

Drill work in addition and subtraction for the acquisition of skill, should with more or less frequency, be carried out throughout the Middle Form and occasionally in the Upper Form.

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Order of Work in Multiplication.

92. *Step I.* The multiplication table.

(a) See notes under Step I, addition. In multiplication $\begin{matrix}3\\5\\-\end{matrix}$ is a symbol for 15. Do not let the pupil say, "5 times 3 is 15," but "Fifteen." There is no danger of confusing $\begin{matrix}3\\5\\-\end{matrix}$ with eight, for when one is thinking in multiplication if well taught, addition will not intrude itself.

(b) In teaching the addition table do not use the form $5\times3=15$. Train the eye to recognize the combination more nearly as they will later be used, as $\begin{matrix}3\\5\\-\end{matrix}$

93. *Step II.* To multiply any number by a digit.

1. When no product is greater than 9, as $\begin{matrix}324\\2\\---\end{matrix}$

(a) This is simply a series of applications of the multiplication table. Teach the pupils to see in order the combinations of the table.

2. When one or more products are greater than 9, as $\begin{matrix}417\\4\\---\end{matrix}$

(a) This may be easily adapted from the knowledge of carrying in addition.
(See Middle Form for Step III.)

Order of Work in Division.

94. *Step I.* The division table.

(a) This should be taught in both forms of division, as for instance:
(1) When $18\div6$? means, "*How many sixes are in 18?*"
(2) When $18\div6$? means, "*What is one-sixth of 18?*"

(b) Many concrete problems should be given illustrating these problems, as, to illustrate:
(1) At six cents each how many pencils can I get for 18 cents; or if six apples are given to each boy, 18 apples could be given to how many boys?

(2) 6 pencils cost 18 cents, how much is that apiece? or 6 boys are to have 18 apples divided equally among them, how many apples does each boy get?

These simple problems in division will furnish excellent food for exercise of the pupil's reasoning powers. Let the pupils make and solve similar problems and determine to which kind of division each belongs. (76.)

(c) The combinations of the division table can be taught from the corresponding combinations of the multiplication table. These two tables are complements of each other and should be taught together, as were the addition and subtraction tables (89 (b).)

(See 109 for further work in division.)

95. When the pupil has learned a given combination of the multiplication table, he should be trained to recognize the two factors from the product; as, if 4 times 8 is 32, 32 has for its factors 4 and 8. These three tables, multiplication, division and factoring, may each be used as a drill upon the others.

96. Practice in adding and subtracting should be continued throughout the work in the Primary Form.

97. (a) Pupils should be taught to use a ruler to draw lines of given lengths. Have them draw two lines that meet, as, <. An angle is formed. Have them draw a larger angle, as, ⟨ ; a smaller angle, as, < . Draw a line to meet another line so as to form two angles, as, ⊤. If the two thus formed angles are equal they are right angles; if unequal, oblique angles. Have pupils practice until they can draw these angles readily, and recognize them by their names when they see them. A right angle can be made with the corner of a card, of a book, of a sheet of paper, etc.

(b) Teach the term perpendicular for either side of a right angle. Draw with the card two perpendiculars to the same line, as, ‖. These two lines are parallel.

(c) Draw a 3 inch square, a 4 inch square, etc.; a 2 by 4 inch oblong rectangle (oblong), etc. Divide by parallel lines at the inch divisions. By counting the rows and the number in a

row, let the pupils discover the number of inch squares in the respective rectangles. By drawing rectangles and counting squares the pupil can determine for himself the products of the multiplication table before learning them; as, a 5 by 7 rectangle (5 rows with 7 in a row) has 35 squares, hence $5 \times 7 = 35$, or 7 rows with 5 in a row, hence $7 \times 5 = 35$. (Interpret the symbol $\times$, "times;" as, 7×5 means 7 times 5.)

Draw many rectangles and cut up into inch squares. Use, and get the children to use freely the technical terms in this article.

(d) Much work should be done in measuring with foot rule and yard stick, estimating distances and testing the accuracy by measuring. A rod should be laid off upon the floor of the schoolroom, or the sidewalk; estimates of a rod should be made and corrected, until pupils have a fair idea of its value. Have pupils find how many steps they take to the rod. Then have them lay off by walking, a given distance, as, 4, 6, or 10 rods. Measure the results to see who was most nearly accurate.

(e) The pint, quart, peck and gallon measures should be used in measuring sand, corn, water, or other material appropriate to the measure used, until the pupil has a fair idea of their respective sizes.

(f) Problems involving these measures should be made and solved by the pupils. Reductions from one unit to another, both ascending and descending, should frequently be made. As yet, no rules should be given; simply be sure that the pupil images all that he expresses.

TESTS FOR PROMOTION.

98. 1. Ability to name at sight any combination of the addition, subtraction, multiplication, division and factoring tables

2. Ability to read, write, add, subtract, and multiply by a digit, simple numbers to 1000.

3. Ability to solve simple problems involving these operations.

4. A knowledge of the denominate numbers in familiar use

which will enable the pupil to make simple reductions within the range of his knowledge of multiplication and division.

Prepare a list of questions and test the pupil's ability to advance to the next form.

II.—Middle Form.

99. The purpose of the work in the Middle Form is to acquire skill in the fundamental processes, fractions and decimals; to train the reasoning powers in solving concrete problems in application of these processes; to train in language in making orderly statements of procedure.

COURSE OF STUDY.

100. 1. Reading and writing of numbers extended.

2. The processes of multiplication and division completed.

3. The factoring of numbers to one hundred, and L. C. M. taught.

4. All the processes of common fractions taught and problems based upon these processes solved.

5. All the processes of decimal fractions taught and problems based upon these processes solved.

6. Knowledge of denominate numbers extended.

7. Formal statement of definitions, of rules for the processes and of order of work in the solution of problems.

SUGGESTIONS TO TEACHERS.

Order of work in multiplication of simple numbers.

For steps I and II see 92 and 93.

101. *Step III.* The multiplication of any number by any number.

(a) Each example in this work consists of two or more applications of Step II. The pupils need to be shown where to express the right hand figure in the repeated applications of Step II, and that they must add the partial products.

Order of work in division of simple numbers.

For Step I see 94.

102 (a) *Step II.* The division of any number by a digit, viz.: "Short Division."

1. When each application of the division table is exact; as, 2|842, 3|993, 4|1284.
   (a) The pupils simply need to see the successive applications of the division table. Show them what to do and drill for skill.
2. When some of the applications of the division table are not exact, as, 8|378, 6|4237, 4|5368.
   (a) Before taking this step, drill upon such modifications of the division table; as, 42÷8, 17÷5, 23÷4, 48÷6, etc., until the pupils are reasonably expert,
   (b) The pupils simply need to be shown that they must apply the division table, mentally prefix the remainder to the next figure, and again apply the division table, repeating the process to the end of the division.

Step III. The division of any number by any number, viz.: "Long division."

(a) In this work two things must be taught: 1. A form for long division. 2. The use of the trial divisor and trial dividend.

(b) To teach the form, use examples in short division, or, examples with larger divisors within the range of the pupils extended multiplication table; as, 12, 15, 25, 20, 30, etc. The aim here is to show the pupils where to express the different elements in the example. No other difficulty should be allowed to interfere until they are reasonably expert in applying their knowledge of the form of the work.

(c) To teach the use of trial divisor and trial dividend, use for divisors 21, 31, 41, etc., and be sure that the number of times the first figure of the divisor is contained in the first one or two figures of the dividend is the true quotient figure; as, In this example 4 is contained in 6 once, in 26, 6 times, in 18, 4 times.

```
41|6742|164
  41
  264
  246
  182
  164
   18
```

Many carefully prepared examples should be given. When the pupil becomes reasonably expert in this simple use of the trial divisor, give graded examples in which corrections must be made; as,

$$45\overline{)8363}\,185$$
$$45$$
$$386$$
$$360$$
$$263$$
$$225$$
$$38$$

102. (b) *Step V.* In addition.

For other work in addition see 84.

Work in addition can be accelerated by acquiring skill in recognition at sight of the sum of any number of two digits and any number from 10 to 18; as, $+\begin{matrix}47\\15,\end{matrix}\ \begin{matrix}36\\12,\end{matrix}\ \begin{matrix}93\\18,\end{matrix}\ \begin{matrix}82\\17,\end{matrix}$ etc. This is a double application of the addition table. If step II of addition and this step have been mastered, any column of figures can be added at a double rate of speed by adding two figures at a time. If the addition table is known, the sum of any two adjacent figures will be recognized at sight, then one has but to combine these sums by Steps II and V; as in the column at the right; adding down, 15, 30, 37, 47, 61, 70; or adding up, 15, 26, 37, 49, 62, 70.

8
7
6
9
3
4
7
3
8
6
9
—

Drill for quick recognition of Step V and apply the skill acquired in the addition of columns. Accept no imperfect answers. Time the pupils in adding several columns of figures. Record results of a test; one week later give a similar test to see what progress has been made.

Factoring.

I. To resolve numbers from 1 to 100 into prime factors.

103. *Step I.* The separation of the products of the multiplication table into prime factors.

(a) When the multiplication table was taught (95), the pupil learned to separate each product into the two factors that made it; as, $56=7\times8$, hence any product of the table may now be completely factored by first separating it into two factors, then each of these factors into prime factors. In this operation nothing should be recorded except the prime factors.

Step II. The separation of each multiple of 7, 5, 4, 3 and 2 from 1 to 100, not included in Step I, into prime factors.

(a) Each of these products should first, as in Step I, be separated into two factors and these factors memorized; as, $91=7\times13$; $68=4\times17$, etc. To memorize this factoring table from 1 to 100. if one would have much facility with numbers, is important.

Step III. The recognition at sight of all prime numbers from 1 to 100.

(a) For drill hold the watch upon the pupils in writing the 26 prime numbers 1–100. See if any one can write them in 20 seconds or less.

II. To resolve numbers of three or more orders into prime factors.

(a) Teach the tests of divisibility usually given in arithmetics.

(b) Determine a factor, composite if possible, of the given number by the tests of divisibility, and divide by it. Test the quotient in the same way. Continue this process until a quotient is obtained that can be factored by inspection; complete the work by I.

103. (a) Give such examples as:

Divide the product $24\times28\times40$ by the product 56×15. After a little experience in the following form, such a simple example can be worked mentally:

$$\frac{\overset{4}{\cancel{24}}\times\cancel{28}\times\overset{8}{\cancel{40}}}{\cancel{56}\times\cancel{15}}=32.$$

Cultivate the habit of looking for opportunity to abbreviate the work of multiplication and division by cancellation.

Samples of examples suitable for mental work:

$72\times63\div56$. $48\times27\times11\div18\times88$. $51\times42\div17\times6$. $84\times72\times20\div12\times63$.

Exercises in rapid work upon carefully selected examples of this type constitute an excellent drill upon the multiplication, division, and factoring tables.

Least Common Multiple.

104.

(a) Teach the principle of multiple, viz: "*A multiple of a number must contain each of the prime factors of that number;*" as, a multiple of 12 must contain the factors 2, 2 and 3. 28 is not a multiple of 12 because it does not contain 3.

(b) Find the L. C. M. of 12, 18, 15. Take the factor 2 the greatest number of times it occurs in any of the numbers, viz: 2^2. Take 3 in the same manner, viz: 3^2, and 5, viz: 5 once. As no other factors appear, $4 \times 9 \times 5$ or 180 is the L. C. M., because 180 contains each prime factor of each of the numbers (a) and because it is the smallest number that contains each prime factor.

104a. (c) If factoring is understood most of the work in L. C. M. can be done mentally. In the following example sufficient written work is used. The L. C. M. of 84, 56, 42, 63, is 8 ·9 ·7=504. Do not permit pupils to write out the prime factors of each of the numbers. Solve many examples in L. C. M. In drills work for rapidity.

(8 ·9 ·7 is another way of writing $8 \times 9 \times 7$.)

Fractions.

105. Oral Work.

(a) In the first year of the middle form, if not before, simple problems involving the fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, $\frac{1}{6}$, $\frac{5}{6}$, etc., with digit denominators, tenths and twelfths, should be freely given. Pupils should find the fractional parts of paper circles, squares, apples, etc., make drawings of circles, lines and squares and find their fractional parts.

(b) Various objects can be used to illustrate different fractional units; as, the foot rule divided into halves, quarters, eighths, the clock face into twelfths, the yard into thirds, the week into sevenths, the month into quarters, coins into their various divisions, etc. The main thing gained in this work is the surety that the pupil images the things he talks about. Let him indicate whether he would prefer to have the pie cut into fifths or sixths, the watermelon into fourths or eighths; whether he would prefer to saw one-half or one-third of a cord of wood, etc. A difficulty in teaching fractions is to have the pupils appreciate the unit indicated by the denominator; the denominator may be 4 but the unit is one-fourth, the denominator 7, the unit one-seventh. Another difficulty is to get the pupils to appreciate that the larger the denominator the smaller the unit, and the smaller the denominator the larger the unit. A long period of time working upon small fractions is necessary to a full ap-

preciation of these points. This elementary work should be carefully done before taking up the written work of fractions.

(c) By means of drawings, paper folding, paper cutting, etc., determine the number of halves, thirds, fourths, etc., there are in one, in two, etc., the number of halves in $2\frac{1}{2}$, $3\frac{1}{2}$, etc.; the number of thirds in $1\frac{1}{3}$, $2\frac{1}{3}$, $3\frac{2}{3}$, etc.

(d) In the same way various reductions of the fractions should be worked out and committed to memory; as, $\frac{1}{2}=\frac{2}{4}=\frac{3}{6}$, $\frac{1}{3}=\frac{2}{6}$, $\frac{2}{3}=\frac{4}{6}$, etc.

(e) Give many examples based upon paper cutting, etc., as follows: $\frac{1}{4}+\frac{3}{4}$; $\frac{1}{2}+\frac{1}{4}$; $\frac{1}{2}+\frac{3}{4}$; etc.; $\frac{1}{2}+\frac{1}{6}$, $\frac{1}{2}+\frac{2}{6}$, $\frac{1}{2}+\frac{5}{6}$, etc.; $\frac{1}{3}+\frac{1}{6}$, $\frac{1}{3}+\frac{5}{6}$, etc.; $\frac{2}{3}+\frac{1}{6}$, $\frac{1}{2}+\frac{1}{3}$, $\frac{1}{2}+\frac{2}{3}$, etc., $\frac{1}{2}+\frac{1}{8}$, $\frac{1}{2}+\frac{5}{8}$, $\frac{1}{4}+\frac{1}{8}$, $\frac{3}{4}+\frac{5}{8}$, etc. Make many similar examples in subtraction.

(f) Solve such simple examples; as, $5\times\frac{2}{3}$ (5 times $\frac{2}{3}$, $2\times\frac{3}{4}$, etc., $\frac{1}{8}\div 2$ (read $\frac{1}{2}$ of $\frac{1}{8}$), $\frac{6}{7}\div 2$, $\frac{6}{7}\div 3$, etc.

If $5\times\frac{2}{3}$ were written for the pupil, "5×2 thirds" the distinction between the unit and the number in the fraction could be more easily seen. Write $\frac{4}{5}\div 2$ as "$\frac{1}{2}$ of 4 fifths."

(g) This work should be mental and no rule should be used. Let the pupil determine the answer by experiment with paper circles or other objects, paper folding, etc., or by means of his imagination. Be sure he images in his mind the entire process.

Principles of Fractions.

105 (1).

(a) The elementary meaning of a fraction should be shown, viz: that the fraction is a quantity in which the numerator is the *number* and one over the denominator is the *unit;* as, $\frac{3}{4}$ means 3 of the $\frac{1}{4}$s, or 3 fourths, $\frac{5}{7}$ means 5 sevenths. Compare with 6 gallons, 3 pints, etc.

(b) A fraction can be multiplied by multiplying the numerator, or by dividing the denominator.

(c) A fraction can be divided by dividing the numerator, or multiplying the denominator.

(d) A fraction can be reduced by multiplying both terms, or by dividing both terms.

Any quantity can be multiplied by multiplying the *number* or by multiplying the *unit.* 2 times 3 pints=6 pints; or 2×3 pints=3 quarts. In the first illustration

the number 3 was doubled, in the second the unit pint was doubled. $2\times\frac{3}{4}=\frac{6}{4}$ or $2\times\frac{3}{4}=\frac{3}{2}$. Compare with the two ways of taking 2×3 pints. Illustrate this principle fully. In which case is the *number* multiplied? In which case the *unit*?

A quantity can be divided by dividing the number or the unit. 12 gallons $\div 4$ ($\frac{1}{4}$ of 12 gallons=3 gallons or $\frac{1}{4}$ of 12 gallons=12 quarts. Illustrate this principle fully. $\frac{4}{5}\div4=\frac{1}{5}$ or $\frac{4}{5}\div4=\frac{4}{20}$. Show by a drawing that a unit $\frac{1}{5}$ is four times as large as the unit $\frac{1}{20}$.

In reducing $\frac{3}{4}$ to $\frac{9}{12}$ show that the number 3 has been multiplied by 3 and the unit $\frac{1}{4}$ has been divided by 3. Show why $\frac{3}{4}=\frac{9}{12}$.

Addition and Subtraction of Fractions.

WRITTEN WORK.

105 (2). Before taking up the written work, be sure that the pupils are reasonably expert in handling fractions with digit denominators. (105). They must learn from this oral work: 1. That to reduce fractions to a least common denominator, both terms of each fraction respectively must be multiplied by such a number that the resulting denominators are all alike; 2. That the required denominator is the L. C. M. of the given denominators. When these facts are understood a good form for the work should be given. The following is suggested: *No more written work should be allowed* for such an example than is given here.

The L. C. D., 168, can be divided by the various denominators mentally by cancellation. $168=8\cdot3\cdot7$, $24=3\cdot8$, hence by cancellation $168\div24=7$.

$$
\begin{array}{rl}
8\cdot3\cdot7 & 168 \\
89\tfrac{1}{24} & 77 \\
45\tfrac{2}{28} & 138 \\
96\tfrac{6}{12} & 100 \\
128\tfrac{1}{84} & 86 \\
\hline
360\tfrac{65}{168} & 401 \\
 & 336 \\
 & \hline
 & 65
\end{array}
$$

105 (3). The following are suggested as convenient forms for subtraction:

The form (b) differs from (a) simply in being adapted to the process of borrowing. 212 cannot be subtracted from 95, hence one or $\frac{260}{260}$ is borrowed and added to $\frac{95}{260}$ which equals $\frac{355}{260}$. In testing whether $\frac{143}{260}$ can be reduced to lower terms, test 143 by the prime factors of 260 only; viz.. 2, 5, and 13.

(a)
$$\begin{array}{r|l} & 260 \\ 136\frac{95}{260} & 145 \\ 84\frac{117}{260} & 68 \\ \hline 52\frac{77}{260} & 77 \end{array}$$

(b)
$$\begin{array}{r|l} & 260 \\ 347\frac{19}{260} & 95 \\ 167\frac{212}{260} & 212 \\ \hline 179\frac{143}{260} & 143 \end{array}$$

Drill for rapid work in solving examples in addition and subtraction of fractions by these forms. Give tests in competition, holding the watch.

Give many examples like the following for mental work: Add (1) $\frac{2}{3}$, $\frac{1}{6}$, $\frac{1}{3}$, $\frac{5}{6}$. (2) $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{8}$, $\frac{5}{8}$. (3) $\frac{1}{8}$, $\frac{5}{6}$, $\frac{1}{12}$, $\frac{7}{12}$, $\frac{2}{8}$, etc. In oral work let the pupil add by naming the successive numerators as, in adding a column, as, in last example: 4, 14, 15, 22, 30, $\frac{30}{12}$; $2\frac{1}{2}$= ans. There is no objection to naming the denominators except that it takes time and is a slight hindrance in the computation.

Also like the following: $\frac{5}{8}-\frac{1}{4}$, $\frac{3}{4}-\frac{5}{8}$, $3\frac{2}{3}-1\frac{5}{8}$, $8\frac{5}{6}-3\frac{1}{12}$, $4\frac{1}{8}-2\frac{9}{10}$, $7\frac{1}{8}-3\frac{7}{12}$, etc.

Teach short method for such groups as: $\frac{1}{3}+\frac{1}{4}$, $\frac{1}{5}+\frac{1}{7}$, $\frac{1}{8}+\frac{1}{5}$, etc. Subtract the same. For $\frac{3}{8}+\frac{3}{4}$, $\frac{3}{8}+\frac{3}{7}$, $\frac{5}{6}+\frac{5}{11}$. etc. Subtract the same.

Multiplication of Fractions.

105 (4).

(a) Before taking up this work the principle in 105 (1) (b) 1 should be familiar. Books differ as to the method of reading the sign, $\times$. The simpler way for the children is to read the sign *times* when the multiplier is an integer, and *of* when a fraction; as $3\times\frac{4}{7}$, 5×8, read 3 times $\frac{4}{7}$, 5 times 8; $\frac{3}{8}\times 8$, $\frac{3}{5}\times\frac{2}{3}$, read $\frac{3}{8}$ of 8, $\frac{3}{5}$ of $\frac{2}{3}$. The sign should be so read in these pages.

Teach one rule for the whole subject of multiplication of fractions. The following is suggested:

(b) To multiply a fraction by a whole number, a whole number by a fraction or a fraction by a fraction, think one as the denominator of integers, reduce mixed numbers to improper fractions, multiply the numerators together for a new numerator and the denominators for a new denominator, using cancellation when possible, and reduce the result to its simplest form.

(c) Apply the above principle 105 (1) (b) in a few examples to test the accuracy of the rule. When the pupils have become expert in the use of the rule a short cut might be suggested; as, To multiply a mixed number having a large whole number by an integer, multiply the fraction and the whole number separately. Many methods have a tendency to prevent the acquisition of skill. The price of skill is judicious and thorough drill upon one rule.

Division of Fractions.

105(5). Before taking up this work the principle in 105 (1)c should be familiar.

(a) Teach one rule for the whole subject of the division of fractions. The following is suggested:
To divide a fraction by a whole number, a whole number by a fraction, or a fraction by a fraction, think one as the denominator of all integers, reduce mixed numbers to improper fractions, invert the divisor and proceed as in multiplication of factions.

(b) Apply the principle above referred to 105, (1) (c) to several examples to test the rule.

105(6). In solving complex fractions, consider the denominator the divisor and apply the rule for division.

In complex expressions involving only multiplication and division, indicate the whole as one example in multiplication and abbreviate by cancellation, as,

$$\frac{\frac{4}{5}+2\frac{1}{3}}{\frac{3}{7}+1\frac{1}{6}}=\frac{4}{5}\times\frac{3}{7}\times\frac{7}{2}\times\frac{10}{9}=1\frac{1}{3}$$

105(7). Many concrete problems in application of the processes in fractions should be given. The solutions should be worked out independently by the pupils. The aim in such practical problems should be to develop mental power in the pupil Pupils grow in power of thought by using the power they have already acquired. *Any device or assistance enabling the pupil to get the answer without thinking out the problem defeats the aim.*

106. The following general problems of fractions should be solved and illustrated until they are thoroughly familiar, as they underlie not only much work in fractions, but the whole subject of percentage. They will be called, for ease of reference, the Three problems of Fractions:

1. To find a fractional part of a number; as, To find 5/7 of 28; To find 3/4 of 12. Solve by analysis.

2. To find what part one number is of another; as, To find what part 3 is of 5; To find what part $2\frac{1}{2}$ is of 5/6. Solve the more difficult examples in this problem by reference to a simple type example; as what part is 2 of 3?

2. To find a number when a certain fractional part of it is given; as, If 3/4 of a number is 12, what is the number? What is the number 2/5 of which is 20?

No. 3 should be fully illustrated by drawings, paper-cutting, etc., as, if $\frac{3}{5}$ of a number is 15, find the number. The required number can be illustrated by a circle divided into fifths, three parts of which equal 15. Since three equal parts or fifths of the circle equal 15, what is one part? Having found one part, what is the whole.

Application of these problems will occur and recur with varying degrees of difficulty, all through the middle and upper form work, hence especial attention should be given to the mastery of them.

107. Throughout the entire Middle Form, drill occasionally in the processes of the fundamental rules. Remember that the aim in this drill work is accuracy and rapidity; that when these are sacrificed the time is wasted.

Decimals.

108. The subject of decimals can be based upon Federal money.

(a) In the first year of the Middle Form teach the denomination tenths. Teach pupils to add, subtract, multiply by an integer, and divide by an integer. To illustrate the latter cases:

One third of 3.6=one third of 36 tenths=12 tenths =1.2.

(b) When the pupil has become familiar with the tenths, introduce hundredths in a similar manner, say in the second year of the Middle Form. Use both tenths and hundredths in many concrete probloms.

(c) In all the examples and problems be sure the pupil clearly images the ideas represented by the symbols. Give no rules as yet.

Decimals. Written Work.

108 (a). In the last year of the Middle Form teach formal addition, subtraction, multiplication, division and the reduction of decimals.

108 (b). In multiplication let the pupil express the decimals as common fractions, use the rule for multiplication of fractions, note the number of ciphers in the denominator of the product, compare with the number of decimal places in multiplier and multiplicand and deduce rule; as,

$$3.7\times.376=\tfrac{37}{10}\times\tfrac{376}{1000}=\tfrac{13912}{10000}=1.3912.$$

108 (c). In division base the work upon multiplication and deduce rule. The dividend corresponds to the product, and the divisor and quotient to the factors; hence as the rule in multiplication says "multiply as in simple numbers," etc., the rule for division must be "divide as in simple numbers," etc. Let the pupils determine their own rule for pointing off the quotient. Put it as a problem to them: The dividend is the product of the divisor and quotient. Since the dividend by the rule for multiplication must contain as many decimal places as both divisor and quotient, how many decimal places must be given the quotient? Before beginning the solution, the pupil should see to it that the dividend has at least as many decimal places as the divisor.

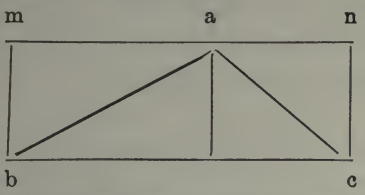
After getting the rule drill for skill.

Mensuration.

For area of square, rectangle, etc., see 97 (c).

109. Teach the meaning of the terms triangle, base of triangle, altitude of triangle. Illustrate freely. By means of rulers and right angles, have pupils draw on paper and blackboard triangles and their altitudes.

Develop a rule for the area of a triangle by means of drawings, paper cuttings, etc. Show that it is half of a rectangle having the same base and altitude,



Show by cutting or folding paper that the triangle abc is half of the rectangle mnbc, and that it has the same base and altitude.

Draw many triangles on the board and have the pupils measure the bases and altitudes and compute areas. Give many problems on the triangle. Have pupils draw an altitude of a triangle from each vertex, compute area with each and compare. This is a good test for accuracy.

109 (a). Teach the meaning of circle, center, radius, and diameter. Illustrate freely. Have pupils draw and cut circles. Develop a rule for the area of the circle. Take a slice of a turnip, sugar beet, or the like, half an inch thick and as nearly the shape of a cylinder as possible. Cut it in two through the diameter, then cut it into triangular shaped pieces from the center (sectors), leaving them connected by the skin. These two sets of sectors can be fitted together in the form of a rectangle nearly, and the area of the circle thus determined; or, the area can be determined by treating the sectors as triangles. The rule found may be stated thus: Multiply the circumference by one-half the radius.

To use this rule one must know how to find the circumference from the radius or diameter. To do this let each member of the class measure with a tape line the circumference of a barrel head and its diameter, the circumference of a pie tin and its diameter, of a dinner pail cover and its diameter, etc., then divide each circumference by its diameter, carrying out the division correct to two decimal places. These quotients will average close to 3.14. Use $3\frac{1}{7}$ for the ratio in all computations.

The above rule will be more easily remembered by Middle Form pupils, as it is so closely related to the triangles from which it arose. $3\frac{1}{7}\times$ radius squared is shorter, but pupils cannot so easily recover it if they forget it.

A circle is 14 inches in diameter, find its area. Indicate the operation and abbreviate by cancellation; as,

$$\frac{\overset{11}{\cancel{22}}}{\cancel{7}}\times\overset{14}{\cancel{14}}\times\frac{\cancel{7}}{\cancel{2}}=154$$

Give many problems involving circles and triangles. Have pupils draw circles upon paper or blackboard, measure the diameter, and compute the area.

110. Every school should own a tape line. Measurements should be made of the schoolroom, to determine the areas of floor, walls and ceiling. Problems of plastering and papering should be worked out, based upon actual measurements in the schoolroom or homes of the pupils. Be sure to base solution of problems upon actual business methods. Consult the mason and the paper dealer. Measure the school ground in rods and find how many acres or what part of an acre it contains. Measure other convenient plots of ground, If a convenient place can be found, measure a rectangle 10 by 16 rods to enable the pupils to appreciate the *size* of an acre. Find out by measurement or inquiry where certain distances are, that are common terms of conversation in the country; as, 10 rods, 40 rods, 80 rods, a mile, etc., and have pupils try to appreciate the meaning of the terms. Locate, if possible, a piece of land called "a 40," "an 80," "a quarter section," etc.

110 (a). Measure the stature of the pupils of the school. For this purpose a simple device in the shape of a carpenter's square can be made, one arm to be held against the wall, the other to be brought down upon the head of the one being measured. (One of the pupils will probably volunteer to make the frame.) Teach the boys how to measure the height of horses. Drawing surfaces to a scale can be introduced. The schoolroom, the school grounds, a field adjacent to the school grounds,

can be measured and so drawn. This work on scales can be made to broaden the knowledge of fractions.

110 (b). Lay off on the sidewalk 6 rods or 100 feet. Have pupils walk this distance until each knows with a fair degree of accuracy how many steps he requires at his most natural pace to walk it. Let them walk off an assigned distance. Measure to see who is most nearly accurate. Let them estimate by walking the distance from the school to the various homes, to the cheese factory, blacksmith shop, etc.

The teacher's ingenuity will extend the list of things that can be done to awaken the pupils' interests and make them more familiar with their environment.

110 (c). Build a rectangular solid of inch cubes (80 (a)) and count them. Compute the number of cubes in one layer by noting the number of rows and the number of cubes in a row. Then compute total number of cubes by means of the number of cubes in one layer and the number of layers. Build several similar rectangular solids and deduce rule for volume. Give many practical problems. The following may illustrate:

(1.) 30 cu. ft. of air should be brought into a school room every minute for each pupil. If a school room is 12 by 35 by 42 and contains 30 pupils, how often should the air be completely changed?

(2.) A space of at least 600 cu. ft. should be given to each pupil in a school room. How many pupils can safely use the above room?

(3.) Measure your school room. Determine whether it is well ventilated or overcrowded?

111. The analysis of problems was begun in the Primary Form, and should be continued whenever problems are used. (78 (1), 81, 88, 95 (f), 115 (7)). While no set form of words or formal analysis is to be insisted upon, yet a clear statement of the various steps in the solution of a problem should always

be had, with enough of the reason for it, to show that a pupil knows *why* he performs a given operation.

111 (a). All the various problems in Arithmetic fall into a very few classes subject to general laws, and this fact will gradually lead to the adoption of a simple statement of the essential facts; that is into a rule or formula. When a formula thus grows out of a child's experience, instead of being made for him and fed to him, it will prove useful enough to be worth retaining. Whether one buys eggs by the dozen, rents land by the acre, loans money at seven per cent., or buys "stock at 87," he multiplies "price by quantity to find the cost," or "the price of one by the number to find cost."

Work of this kind, if not a daily exercise, should certainly be given with small numbers for mental work and to illustrate the principles involved on taking up each new topic.

TESTS FOR PROMOTION.

112. 1. Ability to deal rapidly and accurately with simple and compound numbers, common and decimal fractions.

2. A knowledge of the factors of numbers to 100, and ability to select and combine factors so as to produce mentally the L. C. M. of any group of numbers below 100.

3. Ability to solve problems involving simple combinations of the processes named, and to form original problems involving these processes.

4. Ability to define arithmetical terms frequently used; to give an orderly statement of the steps in the processes, orally or in written language.

5. Ability to compute the area of rectangles, triangles and circles, and the volume of rectangular solids.

III.—Upper Form.

113. The chief purpose of the work with numbers in the Upper Form is to continue the work begun in the lower forms, and so to extend it as to give the pupil skill in performing the ordinary arithmetical computations employed in business life,

and at the same time to give such a training in logical thinking as will be of value to the pupil in any subsequent mental work. Much valuable information will be incidentally gained concerning the more common facts of business.

COURSE OF STUDY.

114. 1. Complete the work on Denominate Numbers, including the simplest part of Longitude and Time.

2. Teach such portions of Mensuration of Surfaces and Solids as will be of most practical use.

3. Give work in percentage involving:

(a) Reduction of Common Fractions to per cent.

(b) The three problems:

1. Finding any per cent of a number.
2. Finding what per cent one number is of another.
3. Finding any number when a certain per cent of it is given.

(c) Profit and Loss, Trade Discount, Commission, Simple Interest, including Partial Payments. Teach the forms and uses of the various kinds of commercial paper in common use.

4. Ratio and Proportion, Extraction of Roots.

5. Give constant drill throughout this Form to secure accuracy and rapidity in reaching the results required in the different lines of work.

SUGGESTIONS TO TEACHERS.

Mensuration.

115. Each school should be provided with at least one hundred inch cubes to facilitate the development of rules for volume of solids. Build a rectangular solid of inch cubes and determine again the rule. (110 (c)).

1. Find the number of gallons in a rectangular tank $1\frac{1}{2}$ by $3\frac{1}{2}$ by 11 feet.

Indicate the entire operation and abbreviate by cancellation, as,

$$\frac{3}{2}\times\frac{7}{2}\times\frac{11}{1}\quad\frac{\overset{3}{\cancel{(12}}\times 12\times\cancel{12)}}{\underset{1}{\cancel{231}}}=432$$

Define cylinder, base and altitude of cylinder. Illustrate.

2. To find the volume of a cylinder. Find the area of the circle which is the base of the cylinder in square inches. 109 (a). How many cubic inches would there be if the cylinder were one inch high? If 2 inches high? Any given number of inches high? State the rule. Compare with rule for volume of a rectangular solid.

3. How many bbls. does a cylindrical watering tank 7 feet in diameter and $1\frac{1}{2}$ feet deep hold? Indicate the entire solution. Make careful oral statements of the thought as each step is indicated.

Solution:

$$\frac{\cancel{22}}{\cancel{7}}\times\frac{\cancel{7}}{1}\times\frac{\cancel{7}}{\cancel{4}}\times\frac{\cancel{3}}{\cancel{2}}\times\frac{\overset{4}{\cancel{12}}\times\cancel{12}\times 12}{\underset{1}{\cancel{231}}}\times\frac{2}{\underset{7}{\cancel{33}}}=13\tfrac{5}{7}$$

4. How many tons of ice 10 inches thick can be taken from five acres of water, allowing 20 per cent. loss in handling? (A cubic foot of water weighs $62\frac{1}{2}$ lbs., and the specific gravity of ice is about 93 per cent.) Indicate in one expression and abbreviate by cancellation.

5. A grain bin is 5 by 6 by 8 feet. How many bushels does it hold? A cubic foot is .8 of a bushel nearly .

6. My roof is 28 by 33 feet. How deep would a one inch rain fall fill my cylindrical cistern 7 feet in diameter?

7. If my cistern has a diameter of 9 feet and a depth of 8 feet and my roof is 27 by 33, how many inches of rain must fall to fill the cistern?

8. A field of five acres of corn was planted in rows 3 ft. 8 in. apart each way. If each hill averaged $2\frac{1}{2}$ stalks, each stalk $1\frac{1}{4}$ ears, and it requires 125 ears to make a bushel, what was the yield of the five acres?

9. Let the pupil determine the increase of yield on 25 acres by increasing the average number of ears on a stalk to $1\frac{3}{4}$.

Let pupils make up problems similar to this one, determining the data for it by actual observation.

115(1). Whenever the solution of an example involves only multiplication and division the probability is that the solution can be abbreviated by indicating the work and using cancellation. A knowledge of factoring is valuable for rapid work here.

(a) Have pupils solve problems in finding cost of lumber. Bring a board into the school room if convenient, or consider a board in the floor or elsewhere and develop the rule. A good statement for the rule is: Multiply together the number of pieces, the length in feet, the width and thickness in inches, divide by 12, multiply by the price per M., and point off three places.

(b) Find the price of 20 pieces of lumber $3\times6\times16$ @ \$20.00 (read: 20 pieces of lumber 3 by 6 by 16 at \$20.00.) Ans. \$9.60. In this example there is no need of any written work. It is evident that the product of 20, 3, 6, 16, and 20 must be obtained and the result divided by 12×1000. The factors of 12 cancel 6 and the factor 2 of 20. Then 10, 3, 16 and 20 can be multiplied mentally and three places pointed off; or 3, 16, and 2 can be multiplied, and one place pointed off.

(c) Give many examples and drill for mental work as far as practicable. Have bills of lumber made out in regular form by pupils.

115(2) (a) In carpeting find the number of breadths required for a room and the number of yards in each breadth. Remember a dealer never cuts a carpet lengthwise.

(b) If the carpet has a pattern that must be matched, allowance must be made for the matching. Carpets are three-fourths of a yard, or a yard wide.

(c) If a border is to be considered, make a diagram of the room, and, with a strip of paper to represent the carpet, show how it must be cut to fit the room. Border carpet is usually of a yard wide.

115(3). In teaching the solution of cordwood problems, teach the children that a cord of wood is a rectangular pile 4 by 4 by 8 feet, and not that it consists of 128 cubic feet. By indicating the complete problem and abbreviating by cancellation, the advantages of the suggestion may be seen. Many times the problem can thus be worked mentally as in the following example:

What is the cost of a pile of wood 36 by 6 by 4 feet at $4.00 per cord? In the solution of the problem it will be seen that the product of 36, 6, 4 and 4 must be divided by $4\times4\times8$.

Whe width of a pile of cordwood is nearly always a multiple of 4, the height is usually a multiple of 4 and the length is frequently a multiple of 8; hence it is a gross waste of time to divide the product of the dimensions by 128 and multiply the result by the price.

Give pupils drill in solving similar examples mentally, simply stating the answer.

115(4). The following has been termed the "Golden Rule of Arithmetic:" In processes involving both multiplication and division, always divide first if the division is exact. It might be summed up in these words: Use cancellation if possible in the solution of examples involving only multiplication and division.

Time is frequently lost in the solution of problems by performing the processes in order as soon as discovered; especially is this true if the processes consist only of multiplication and division. If the entire solution of the problem be indicated as it is thought out, the operation can usually be abbreviated by cancellation.

115(5). Encourage the pupils to bring practical problems from the farm, store or shop involving mensuration of solids or surfaces. These will have the great merit of being real, hence practical, and there is no guide to the answer except the pupil's work. It will be found that the rules of the books for measuring masonry and other products are not always the rules followed by workmen in different localities, and this will have its

useful result in correcting any tendency to bookishness in the teacher or the pupil.

115(6). Much valuable time is worse than wasted in teaching obsolete tables, units in denominate numbers, and those of special not general use. Surveyor's measure is too technical, "pipe" and "tun" belong only to history, "long ton" is explained by the dictionary, Apothecaries' weight is beyond defense, "Averaging Accounts" is out of date, and exchange is no longer in ordinary experience an application of percentage. Teach common measurements and computation effectively, and all the rest will be easily learned when needed.

115 (7). Continuous examples representing a year's work in some particular on the farm, will have especial value in distinctively rural districts in awakening interest in farm life, and opening the pupil's eyes to the problems of the farm. The following may illustrate. As prices and methods are not everywhere the same, it will probably need modification to meet any given locality.

1. Mr. A. bought a farm 80 by 160 rods. Find the number of acres.

2. He paid $67.00 per acre. Find the cost.

3. He built two lines of wire fence across the farm parallel to the end fence. The posts were set 1 rod apart and cost 18 cents each. The wire runs $\frac{5}{8}$ of a pound to the rod and it cost $3.25 per hundred pounds. The fence is 5 wires high. The labor for building cost $25.00. Find the total cost.

4. Find the yearly interest expense at 5c on each dollar of the value of the farm including the cost of the fence.

5. He planted one field 80 by 80 rods to corn. It cost 1.12\frac{1}{2}$ an acre to plow it.

6. It cost 25 cents an acre to pulverize and harrow it.

7. It cost 35 cents an acre to plant it. The seed corn cost $1.00 per bushel and one bushel planted 4 acres. Find the cost of seed and planting.

8. The corn was cultivated four times at a cost each time of 30 cents per acre.

9. The corn was cut at $1.10 per acre. The binding twine cost 12 cents per pound and averaged 3½ pounds to the acre.

10. The setting up of the corn cost 45 cents an acre.

11. The corn was shredded at a cost of 3 cents a bushel with an additional cost for labor, coal, etc., of $25.00. The yield averaged 52 bushel per acre.

12. The roughage amounted to 3 loads per acre, worth $1.75 per load. If the corn was worth 33⅓ cents per pushel, what was the profit per acre? What was the profit for the farm if the net yield for the rest of the farm, acre for acre, is ⅘ as great?

Make up several problems representing a year's experience in leading lines of business on the farm; as, a year in dairying, poultry raising, raising of wheat, potatoes, beets, tobacco, etc. Consult people of experience concerning the data for the problems.

Percentage.

116. To understand percentage the pupil, 1. Must possess a knowledge of various lines of business involved, as of commission, loaning money, of affairs involving profit and loss, etc., and be able to use the language of the business. 2. He must know the Three Problems of Fractions (106) and be able to apply them in percentage. 3. He must appreciate that the distinctive difference between fractions and percentage is not so much that the fraction is usually expressed in the decimal form, as that the base in percentage is understood and is not indicated in the example. In all examples in fractions the base of the fraction is pointed out. The example says ¾ *of 12*, ⅔ *of a sphere*, ⅘ *of the remainder*. etc., but in percentage usually no base is referred to. We find the statements of 5 per cent. gain, 16 per cent. commission, 4 per cent. interest,

etc. It is just as important in percentage to know what it is 5 per cent., 16 per cent. or 4 per cent. of, as in fractions. The pupil's success too often hangs in the balance on account of failure to get the idea by which this base is determined. In each subject of percentage the base is a particular element of the subject and hence does not need to be named in each example; as, in profit and loss, it is always the cost; in commission the *cost* when the agent *buys*, and the *amount of sales* when he *sells*, etc. In each subject of percentage the teacher must determine what the base is, and *tell the pupils*. The analysis of each example is concerned with it, and depends upon it. Without knowing what the *base* is the work is largely guesswork.

116 (a). Each example in percentage should be worked by analysis until the pupil arrives at his own rule or generalization. The problems should be graded but not classified in "cases;" for the pupils will then depend upon the classification rather than upon the conditions of the problem; Train the pupils in changing per cents. to fractions until they can tell instantly the fraction which is equal to any per cent. that is an aliquot part of one hundred; as, $12\frac{1}{2}$ per cent. $= \frac{1}{8}$, $37\frac{1}{2}$ per cent. $= \frac{3}{8}$, $42\frac{6}{7}$ per cent. $= \frac{6}{7}$, $83\frac{1}{3}$ per cent. $= \frac{5}{6}$, $16\frac{2}{3}$ per cent. $= \frac{1}{6}$; also the number of hundredths or per cent. in proper fractions having the following numbers for denominators: 2, 3, 5, 6, 7, 8, 9, 12, etc., as $\frac{1}{2} = 50$ per cent., $\frac{1}{3} = 33\frac{1}{3}$ per cent., $\frac{1}{5} = 20$ per cent., $\frac{5}{6} = 83\frac{1}{3}$ per cent., $\frac{2}{5} = 40$ per cent., $\frac{1}{7} = 14\frac{2}{7}$ per cent., $\frac{2}{7} = 28\frac{4}{7}$ per cent., $\frac{1}{8} = 12\frac{1}{2}$ per cent., $\frac{5}{8} = 62\frac{1}{2}$ per cent., $\frac{1}{16} = 6\frac{1}{4}$ per cent., etc.

Make out a table of per cents. in common use that could be more conveniently used in the fractional form and commit to memory the per cent. with its equivalent fraction. Which is more convenient for use, 20 per cent. or its equivalent $\frac{1}{5}$? 25 per cent. or $\frac{1}{4}$? 50 per cent. or $\frac{1}{2}$? $66\frac{2}{3}$ per cent. or $\frac{2}{3}$?

$14\frac{2}{7}$ per cent. = ? $16\frac{2}{3}$ per cent. = ? $33\frac{1}{3}$ per cent. = ? $37\frac{1}{2}$ per cent. = ? $62\frac{1}{2}$ per cent. = ? $87\frac{1}{2}$ per cent. = ? $83\frac{1}{3}$ per cent. = ?

116 (b). Illustrative problems:

1. A horse that cost $150.00 was sold at a gain of 10 per cent. Find the gain.

Since 10 per cent. means 10 per cent. of the cost, the gain is 10 per cent. of $150, or $15. (Prob. I, 106.)

2. A horse sold for $150 at a gain of 10 per cent. Find gain.

Since 10 per cent. means 10 per cent of the cost, the gain is not 10 per cent. of $150. The cost is 100/100 or 100 per cent. of the cost and the gain is 10 per cent. of the cost; hence the sale price or $150 = 110 per cent. of the cost. (Prob. III, 106.) Complete the solution.

(The pupil often guesses that the percent. is reckoned upon the given number: hence he usually guesses right upon the first example and wrong upon this one; hence the importance of determining that the gain is not 10 per cent. of $150.)

3. The commission in a given transaction was $25, the sales $500. Find the rate of commission. Since the commission is reckoned upon the amount of sales, we are to find what part, or per cent. 25 is of 500, viz.: 25/500 = 5 per cent. (Prob. II.)

4. The gain in a transaction is $25, the sales $500. Find the gain per cent.

Since the gain is reckoned on the cost, the cost must be found, viz.: $475. We now must find what part or per cent. $25 is of $475, viz.: 25/475=1/19=5 5/19 per cent. (Prob. II.)

5. The gain in a transaction is $25, the rate is 4 per cent. Find the cost.

Since the rate is 4 per cent. *of the cost*, it is not 4 per cent. of $25. The gain is $25 and the gain is 4 per cent. of the cost, hence $25=4 per cent. of the cost. (Prob. III.) Complete the solution.

116 (c). To determine whether a given percentage problem belongs to Prob. I or Prob. III, the common ground of error, teach the pupil to ask himself the question: "Is this (the given number) the base?" If "yes" is the correct answer, Prob. I will be recognized. If "no" is the answer, ask further: "What

per cent. of the base is it?" When by analysis this is clearly determined, Prob. III is clearly before the pupil. For example:

1. Think "Is $150 the base?" Ans., "Yes, because it is the cost." (123). Then the problem becomes: To find 10 per cent. of 150 (Prob. I, 116.)

2. Think "Is $150 the base?" Ans., "No; because it is not the cost." Then think further, "What per cent. of the base is it?" The answer to this question must in each example be carefully determined by analysis. (Prob. 2, 116.)

Many oral examples should be solved to enable the pupils to see quickly the relation the given number bears to the base. The complicated examples involving two or more simple ones should not be given until the pupils can at a glance determine which one of the Three Problems is involved in any simple example:

116 (d). Prob. II is always easily recognized.

The difficulty here is, the pupil does not fully appreciate that the number in question must always be compared with the base. It is simplified if he will first ask "what part of the base is the given number?" then reduce the fraction of his answer to hundredths, For example:

3. "Think what part is 25 of 500?" Answer 25/500. Now reduce 25/500 to per cent., viz.: 5 per cent. (Prob. 3, 116.)

In the 4th think "what part is 25 of 475?" Ans., 25/475. Now reduce 25/475 to hundredths, or per cent.

116 (e). In teaching simple interest teach thoroughly one simple, practical method of computing interest. Probably taking everything into account, the best way is: Multiply the principal by the rate, multiply this answer by the number of years; find the interest for months as a fractional part of a year; find the interest for days as a fractional part of a month and add the interests for the several periods.

116 (f). In general "the three problems" should be so familiar through previous work in fractions, that when by

analysis of the percentage problem, the pupil recognizes one or the other of them, the process calls for no further thought; it can be performed by rule, the more automatically the better.

116 (g). To sum up the pupil must know:

1. The business involved (this includes a knowledge of what the per cent. is reckoned upon; viz: the base) and,

2. He must be quick to recognize and skilful to perform the three problems of fractions (106) whether expressed decimally or in fractional form.

TESTS FOR GRADUATION.

117(1). 1. Ability to perform with accuracy and rapidity the processes involved in the work of the three Forms.

2. Ability to analyze problems involving applications of the fundamental rules of simple numbers, of fractions, of decimals, and of denominate numbers; applications of percentage indicated in the course of study; and problems in measurements involved in affairs of life. The analysis of these problems should show a logical train of thought properly expressed.

3. Ability to originate practical problems in the classes indicated in No. 2 and to state them in good language.

4. Skill in writing the various kinds of business forms in common use.

5. Ability to define the arithmetical terms used in the work of the three forms and to state in an orderly manner the rules or the various processes.

COURSE OF STUDY BY YEARS.

Primary Form.

FIRST YEAR.

118. Numbers 1 and 2 § 78. See 78 to 82.

SECOND YEAR.

119. Teach the addition (84) and subtraction tables (89), the multiplication table including all combinations whose product is not greater than 20, (92), and the corresponding parts of the division (94) and factoring tables (95) (103).

Teach the addition of any two numbers (87) and the subtraction of two numbers where each order of the subtrahend is less than the corresponding order of the minuend. (90).

Teach angles, right and oblique angles; perpendicular, oblique and parallel lines; squares and rectangles; the use in practical measurements of some of the simple units as inch, foot, etc., pint, quart, etc. (97).

Continue throughout the year the solution of practical problems. (88).

THIRD YEAR.

120. Review addition and subtraction of simple numbers, drilling for skill. Complete subtraction. (91).

The multiplication, division, and factoring tables completed.

Teach the multiplication of any number by a digit. (93).

Areas of rectangles, exercises in use of simple units in measuring extended. (97).

Teach to read and write numbers to 1,000. To read the Roman numerals to 100 at least.

Continue throughout the year, the solution of concrete problems for training in thought power.

(See note on fractions Fourth Year). (121).

Middle Form.

FOURTH YEAR.

121. Teach the reading of numbers to six orders at least.

Continue the drill upon addition and subtraction for accuracy and rapidity. (107).

Complete the subject of multiplication. (101).

Teach prime numbers to 100 and the factoring by inspection of the composite numbers from 1 to 100; and the application of the tests of divisibility to the factoring of larger numbers. (103).

Teach division by use of cancellation. (103). (a).)

The measurements of areas of rectangles continued and volumes of rectangular solids taught. (110 (c).)

Use of common units in measuring extended. (110, (110) (a) and (b).)

Continue the solution of concrete problems throughout the year.

Concrete work in fractions with denominators from 2 to 12 to teach the smaller fractions and their relations to each other. (105), (105 (1).) (This work on fractions, if possible, should be begun in the third year and extended in the fourth.)

FIFTH YEAR.

122. Work on factoring and division by cancellation extended. (103, 103) (a).

Least common multiple taught. (104).

Oral work in fractions extended as a preparation for the written work. (105).

Addition and subtraction of fractions-written work. (105) (2).

Measurements extended; plastering, papering and carpeting, simple land areas; volumes of rectangular solids; contents of rooms, excavations, walls of masonry, cordwood, etc.

The solution of many concrete problems in review subjects.

Occasional drills upon examples in the fundamental rules to increase the skill of the pupils in computation.

Oral lessons in decimals in tenths, and later in hundreths, in concrete work, to teach the meaning of decimals in their various relations.

SIXTH YEAR.

123. Continue the work in addition (105 (2)) and subtraction (105 (3)) of fractions. Complete the work in multiplication (105 (4)) and division (105 (5)) of fractions.

Give many and varied concrete problems in application of the rules in fractions. Teach "The Three Problems of Fractions." (106.)

Extend the subject of decimals through the four fundamental operations. (108 (a to c).)

Give many concrete problems in application of the same.

Extend the subject of measurements to areas of triangles and of circles. Teach by experiment the meaning "pi." Give many concrete problems in application of the same.(109)(a)

Drill occasionally upon computations in review of subjects.

Upper Form.

SEVENTH YEAR.

124. Review and drill upon the work of decimals.

Complete the work upon denominate numbers, reviewing the work already laid out in measurements of surfaces and volumes. Percentage: Review the Three Problems of Fractions, using in part the denominator hundredths, and the per cent. sign, %. (116.) Express per cents which are aliquot part of 100 in form of common fractions, and all small fractions in common use in per cent. (116 (a)) and have them memorized.

Use the solutions to many concrete problems in percentage to teach the language of the subject and its dependence upon the Three Problems of Fractions. Make a careful study of profit and loss so that it may be used as a model in teaching the other subjects of percentage. Teach volume of a cylinder and

give many concrete problems in application of the same. (115 Ex. (2)).

EIGHTH YEAR.

125. Extend the subject of Percentage to trade discount, commission, simple interest, partial payments. Teach forms of commercial paper in common use; as, bills, notes, checks, drafts, etc., and their special uses.

Extend the subject of Mensuration to surfaces and volumes of cylinders, pyramids, cones and spheres. All rules in this subject should be obtained by analysis or experiment.

Give many practical problems in various industries of the locality, as farming (115 (7)), lumbering (115 (1)), etc. Continued applications of decimals and denominate numbers by way of review.

NINTH YEAR.

126. A general review, giving more attention to the principles and reasons involved, than in the first course.

Give frequent drills in quick analysis of groups of similar problems; as, in oral problems in profit and loss or commission, the Three Problems of Fractions, volumes of the different solids previously studied, areas, etc. Gives frequent drills in various lines of computation. Cultivate a pride in quick, accurate work.

If desirable teach ratio, proportion, powers and roots, one or more of them. Probably a better use of the time would be to so review the work already done that it is understood and can be performed with facility and accuracy.

GEOGRAPHY.

127. 1. The general purpose of the work in geography is to have pupils learn how man utilizes or overcomes natural conditions in securing a living, and to show what his relations are to his fellow-beings.

2. GENERAL SUGGESTIONS.

128. Geographical knowledge is acquired in five different ways: (1) by the observation of geographical objects and phenomena, (2) by map study, (3) by information obtained from the teacher in the form of direct oral instruction, (4) by information obtained from the text book and from reading matter of various kinds, (5) by inferences drawn from facts already known. Good teaching requires the proper combination and correlation of the five methods at each stage of advancement.

In the beginning of the course the lessons should be mostly observational. The facts of geography relate mainly to the material world. The chief value of observational geography does not consist in that it acquaints the learner with his home region, but in that it furnishes him with the elementary ideas which he can use in constructing a complete body of geographical knowledge. For knowledge of the world beyond his home region the pupil depends on information from the book and the teacher. But such information cannot impress itself on his mind if the descriptions by the teacher or in the book do not cause him to form mental pictures of the scenes described. Lessons in observational geography should not be limited to to the Primary and Middle Forms but should form an integral part of the geography of the Upper Form also.

The great bulk of geographical knowledge must be communicated to the pupils. There are two ways in which this can be done; (1) through the text book and geographical readers, and (2) through direct instruction or talks by the teacher.

The text in text books of geography has two uses: It gives the points around which the facts to be communicated may be grouped and it gives a general summary of the lesson. But the text with the map should never be used as the sole source of information. The descriptive matter which it contains is too brief and the facts presented are too general and lacking in interesting detail. For this reason the teacher must resort to the use of geographical readers and to oral instruction. The geographical readers and books of travel found in the library should be used freely and unrestrictedly. This work should not be considered as a task. When pupils give oral reproduction of what they have read they should feel that they are doing this not to show how well they have informed themselves, but rather that they are contributing some valuable information to the class.

Reading on the part of the pupils can be stimulated by a short talk by the teacher which serves as a basis for further study and awakens a desire for more knowledge on the subject. But in order to make a talk effective, the teacher must be well prepared on the subject matter, must adapt the talk to the understanding of the class, and must talk in a way to appeal to the imagination of the children. These talks should usually be limited to five or ten minutes.

Narration is more interesting than description. For this reason geographical information should be woven into narratives by means of imaginary journeys. This method is strong in fixing the associations between one place and another, but it is weak in that it has little regard for the logical connection of the facts. The imaginary journey accompanied with the tracing of the map is the easiest form in which the average teacher can give his talk.

The objects of geography to be understood must be asso-

ciated with their place on the earth's surface. Unless this is done the facts will constitute but a confused mass.

Pupils should be taught to read maps and interpret their meaning. A map is not a picture which anybody who looks at it may understand. Exercises in map interpretation are as necessary in the advanced as in the primary classes. In an oral lesson and in the study-recitation the geographical features should always be pointed out as they are mentioned. All facts presented should be associated with some place or places on the map.

For instructional purposes two kinds of maps may be used; those that are before the pupils ready made, and those that are drawn by the teacher and pupils as the development of the lesson proceeds. Both are important but the latter serves best as a means of instruction.

There should be much drill in map drawing. Guiding lines should rarely be used. In learning to sketch a map there are three steps to be considered: (1) the pupils must examine the map carefully, (2) they must form a mental picture of it, (3) they must copy this mental picture on paper.

In general, the teaching in geography should be managed so as to give pupils abundant opportunities for exercising their judgment and reason. Geography should not be taught as if it treated of a mass of unrelated facts to be merely memorized. Each fact should be studied in its relation to other facts. There should be practice in generalizing, going from particular facts to principles, and in deducing particular facts from general principles or laws. This inferential study should occupy a considerable part of the time of every lesson in the more advanced part of the course, and thus make every exercise an exercise in real thinking. The practice of having the teacher or book explain all the inferential matter of geography is just as objectionable as would be the practice of giving and explaining the solution of the problems in arithmetic. Much work should be done by the teacher in stimulating pupils to self-activity and

in directing their efforts by means of thought questions and directions.

The application of this form of instruction will also be the means of saving much time in the teaching of geography. e. g. After pupils have studied the general circulation of the air and rainfall of the earth as a whole, it is both easy and interesting for pupils to study the climate of any country by answering problem questions put by the teacher, and using the text book to verify the inferences made and secure full and accurate knowledge.

I.—II. Primary and Middle Forms.

129. The purposes of the work in these Forms are:

1st. To have pupils get vivid and correct pictures of small portions of the earth's surface by actual observation so that they may be able to construct pictures of regions beyond the limits of their observation.

2nd. To teach pupils the elements of commercial or industrial geography by studying the industries of the home region so that they may later understand the industrial geography of the world at large.

3d. To furnish pupils a knowledge of child life among the different peoples of the earth.

4th. To lead pupils to see that man's occupations are largely dependent on physiographic conditions.

5th. To teach pupils the most important land and water forms and cities of each grand division, and a few of the large facts in the industrial and social life of the people of each grand division.

130. COURSE OF STUDY.

THIRD YEAR PRIMARY FORM AND FIRST YEAR MIDDLE FORM.

I. Observational Geography.

1. Exercises on location.
2. The land and water forms of the home region,

3. Elementary facts in the physiography of the home region.
4. Elements of industrial geography.

II. Geographical stories told and read to pupils.

SECOND YEAR MIDDLE FORM.

III. Introductory text book lessons on Home Geography.

IV. Lessons on the globe.
1. Shape and size of the earth.
2. The rotation of the earth and the effects of the rotation.
3. The great land and water forms of the earth.
4. The races of men and their distribution.
5. Lessons on the earth as the home of man.

V. Lessons on outline maps.

VI. Lessons on the grand divisions, using text book and library books.
1. North America.
2. The United States.
3. Canada, Mexico, Central America.

THIRD YEAR MIDDLE FORM.

4. South America.
5. Europe.
6. Asia.
7. Africa.
8. Australia.

VII. Geographical stories.

VIII. Summaries.

General references for the teacher.

Mill: International Geography.
Adams: Commercial Geography.
Trotter: Commercial Geography.
Brigham: Geographical Influences in American History.

Shaler: The United States. Vol. I.
Herbertson: Descriptive Geographies.
Garnett, Garrison, Houston: Commercial Geography.

SUGGESTIONS TO TEACHERS AND ILLUSTRATIVE ANALYSIS OF SUBJECT MATTER.

THIRD YEAR PRIMARY FORM.

I. Observational Geography.

131. Unit I. To have pupils apply their knowledge of direction by locating the relative position of objects in the school room.

Exercises like the following should be given:

Point to the north side of the room, the south side, the east side, the west side. Name the pupils directly north of you, directly south, east, west. Name any two objects in the room and state the direction the one is from the other. Locate the NE., SE., SW., and NW. parts of the room.

NOTE.—This unit presupposes a knowledge of the cardinal points. If pupils do not possess this knowledge, the cardinal points must first be taught.

132. Unit II. To locate the relative positions of objects in the school room on a plan of the room drawn by the teacher.

The teacher should sketch a plan of the room on the blackboard without much attention to scale and make clear the relation between the plan and the room itself. The top of the plan should represent the north side of the room.

133. Unit III. To have pupils locate the positions of objects on a map representing the school, its immediate surroundings, and the homes of the pupils.

Indicate by means of a map and questions a good method of doing the work called for in this unit.

134. Unit IV. To have pupils sketch a map of the school room and of the school and its immediate surroundings.

The teacher should work with the pupils in drawing these

maps. They should be drawn on a definite scale, after pupils have made actual measurements. Require pupils also to draw maps on different scales. Introduce many exercises on location, distance and area.

What is the purpose of map sketching? Why should pupils be required to sketch maps on different scales? Why should pupils make the measurements themselves?

135. Unit V. To have pupils see and name the land and water forms of the home region, and to learn the definitions of these surface forms.

Geographical excursions should be made to neighboring creeks, rivers, and lakes to secure vivid and correct pictures of small portions of the earth's surface by actual observation. The imagination will then be able to use this material in constructing pictures of more or less distant regions. By comparing distant regions with the home region all geography can be made home geography.

Lead pupils to find and name the different land and water forms such as island, lake, bay, strait, slope, divide, etc., and in the presence of the things observed, have them describe what they see. In this way definitions will be reached naturally and effectively. Later exact text book definitions should be substituted.

Name all of the different land and water forms which can be taught by actual observation in the district in which your school is located.

Introduce exercises on location, direction, distance and area. Finally the pupils should get a bird's-eye view of each region visited and describe it in class.

Name some exercises on location, direction, etc., that you can introduce. Why should pupils get a bird's-eye view of each region visited?

It is best to undertake this work in the fall and spring. School time should not be used unless with the consent of the school board. One exercise per week after school hours or on Saturday will suffice.

136. Unit VI. To study the surface of the land in the immediate neighborhood of the school.

In connection with the study of the land and water forms make clear to pupils what is meant by the slopes of the land, valleys, plains and hills. Have pupils observe that after a rain small streams are formed wherever two slopes meet and that the steeper the slope the faster the water runs.

In what direction does the stream flow? Upon what does the velocity of the current depend.

137. Unit VII. To familiarize pupils with the symbols used in representing the land and water forms observed in the neighborhood.

A map of the regions visited should be sketched on the blackboard or on a large sheet of manila paper. Exercises like the following may be introduced:

Find the land and water forms represented on the map. Point to the map symbols and state what each represents. Trace on the map the route the class took in making the excursion and point out land and water forms observed. Describe the bird's-eye view of each region described by the map. Make a list of the names of all the different land and water forms which are suggested by the map and learn the definitions.

138. Unit VIII. To have pupils study the rocks, soil and plants of the home region.

This work must be very elementary in character. They should be able to recognize limestone, sandstone and granite, if these rocks are found in the neighborhood. The teacher should tell the pupils how soil is formed, and should name the various soils of the neighborhood. Pupils should collect specimens.

139. Unit IX. To have pupils observe changes of the weather, temperature and rainfall.

Every school should have a thermometer, and temperature readings should be made each day, in the morning, noon and

evening. A record of the wind, fall of rain or snow, and other conditions of the weather should be made each day until pupils have learned to observe general and specific weather conditions. Their work should continue throughout the year.

140. Unit X. The teacher should in an informal way discuss with the pupils the wants of man and how they are supplied. The following questions may be suggestive in planning work on this unit:

Name some of the wants of man. Which are the most important? What food products does the farmer raise? What food products does he need but does not produce? Where does he get those products? How does he pay for them? Where do you get your clothing? Is any of it made on the farm? How is the clothing paid for? Name the materials that were used in building your house. Where were the materials obtained? How were they transported?

Name other things which are needed by man besides food, clothing and shelter. Where were these obtained?

What is money? What does the farmer *really* exchange for the things he needs but does not produce?

Name all of the products of the farm of which the farmer usually has a surplus. Indicate on a map the trade centers, i. e., the villages or cities where he sells his farm products and buys tools, lumber, farm machinery, coal, groceries, clothing, and other manufactured articles.

How are the people of the city dependent on the farmer? Is the farmer also dependent on the town? Explain.

141. Unit XI. To have pupils study the manufacturing industries of the neighborhood.

The manufacturing industries of the region in which the school is located should be visited by the pupils, if possible under the supervision of the teacher. Pupils should report in class on what they saw and learned.

If a cheese factory is visited, pupils should report on the following:

How the milk is obtained. How the cheese is made. Kinds of cheese. How cheese is prepared for the market. Where the cheese is sold and the means of transportation. How the cheese reaches the consumer.

Study the different manufacturing industries of the region in which your school is located, and plan how you would conduct the exercise on each.

II. Geographical Stories Told and Read to Pupils.

142. To have pupils learn of the life of the people of different lands.

Geography is a study of the earth as the home of man. We are not only interested in the natural conditions that make certain occupations possible, but we are also interested in how people live, how they make their living, and what their social relations are. Both features of geography should be emphasized early in the course. Geographical stories should be used throughout the entire course. In the Primary Form and in the first year of the Middle Form the stories should be told by the teacher. After that they should be read by the pupils themselves. The teacher should use maps freely in connection with the stories.

The following lists will be found suggestive:

1. *Children of Cold Countries:* The Seven Little Sisters, 36–38: The children of the cold, 9–153; The Little People of Asia, 280–295; Snow Baby; Little Folks of Other Lands, 26–32; Land of the Long Night, 75–87.
2. *The Children of Hot Countries:* Seven Little Sisters, 94–107; Seven Little Sisters, 31–34; Little Folks of Other Lands, 66–69.
3. *The Children of the Desert:* Seven Little Sisters, 48–66; Little Folks of Other Lands, 7–16; Little People of Asia, 303–222.
4. *The Chinese and Japanese Children:* Seven Little Sisters, 80–93; Little People of Asia, 203–222. 360–405; Carpenter's Asia, 49–58; Japanese Girls and Women, 2–33.
5. *Indian Children:* Stories of Indian Children, 7–34; King's Geographical Reader, Book IV, 202–208.
6. *German Children:* Seven Little Sisters, 108–136; Boys of Other Countries.
7. *Swiss Children:* Seven Little Sisters, 67–79.
8. *Dutch Children:* Around the World, Bk. 1; Little Folks of Other Lands, 74–81; The Wide World, 57–65.

9. *French Children:* The Wide World, 65-73.
10. *Mexican Boy:* The Wide World, 108-114.

FIRST YEAR—MIDDLE FORM.

Observational Geography.

143. Unit I. Observation of the weather, temperature, winds and rainfall.

The observational work on the weather as outlined in unit 9, p 152, should continue throughout the first year of the middle form.

Teach in an elementary way the evaporation of water, the difference between fogs and clouds, the kinds of clouds, dew and hoar frost, how rain and snow are caused, and some of the effects of heat on air.

References for the teacher: Harrington, About the Weather, 33-98. Geographical Nature Studies, 11-20.

How can you prove to children that air is something? How will you show that air contains water vapor? that hot air rises? that cold air flows? Explain to your pupils how your school house is or may be ventilated?

144. Unit II. Teach pupils that water which falls as rāin or snow does not all collect in streams, but some of it may sink into the ground only to appear later on the side of a hill as a spring.

Formulate questions like the following, to be given to pupils to stimulate thought:

Where does the water in the spring come from? What makes it bubble up? Will the spring dry up after awhile? Where does the water all go? Won't the ocean fill up?

145. Unit III. To have pupils study the work of the water on the land.

A temporary stream after a rain, or a permanent creek will offer many lessons for observational geography. Questions like the following may be considered:

In what direction does the creek flow? Is the current swift or slow? Why does the creek not flow in a straight line?

Point out a bend in the creek. Where does the current strike the bank? What effect has this on the bank? In what part of the bend is the water the deepest? Is the water of the creek clear or muddy? If muddy, where does the mud come from? Make a deep pool in the creek, and when the water has become clear, disturb the bottom of the creek some distance above the pool. Observe carefully the place where the muddy water flows into the pool. What happens to the mud that reaches the pool? What causes the mud to settle? Is any part of the pool clear? By exercising a little ingenuity the teacher can illustrate the formation of deltas, estuaries, rapids, flood-plain and other fundamental conceptions in geography.

Is the valley formed by the creek deep or shallow? Point out smaller basins that are parts of the larger creek basin. Locate the divides that separate the different basins. If the region is hilly the divides may be ridges. Make clear, however, that usually the divides are lines only slightly elevated above the surrounding surface. Lead pupils to realize that the creek basin observed is but a part of a larger creek or river basin; that the creek gradually deepens its valley; that the small tributaries deepen their valleys, and that thus the entire creek basin is lowered in course of time. Note where the creek flows between two rocks. Is the current increased in velocity? Is the depth of the creek increased? Upon what does the carrying power of the creek depend? During what part of the year is the creek basin lowered most?

Lead pupils to realize that in all parts of the earth creeks and rivers change the appearance of the land; that the great ocean is the final destination of all sediment carried by creeks and rivers, and that just as the creek basin is lowered by the creek and its tributaries, so all the land of the earth is gradually lowered by the innumerable creeks and rivers of the earth.

What is the general purpose of these excursions? Why is it necessary for the teacher to visit the region to be studied before taking the excursions with the class? Outline the work you propose to do in school after you have made an excursion with your class.

146. Unit IV. To have pupils continue the study of rocks, soil, and plants of the home region.

Encourage pupils to make a collection of the common rocks found in the neighborhood. Of these, limestone, sandstone, and granite should be studied carefully to bring out their characteristic differences. The teacher should discuss with the pupils topics like the following:

What sandstone is, and how sandy soil is formed. Granite rock and clay soil. Limestone rock and marly soil. How frosts, plants, and animals help in breaking up rocks and forming soils. How soil is enriched by animal and vegetable matter. Kinds of soil adapted to the cultivation of different agricultural products.

The teacher should prepare questions like the following to be submitted to pupils: Are there shells in some limestone? How did they get into the rock? Is there solid rock under the soil? How do you know? Account for the difference between the soil found in valleys and that on the top of a hill. Why is some soil quite black?

Much of the above work should be done in connection with the excursions. Particular attention should be paid to the plants in which the farmer is interested. Make pupils acquainted with the different kinds of trees on the farm and in the forest. The wild plants of the forest and fields should be named and characteristic features noted. One of the most important thing to be taught in connection with the field lessons on plants is the difference in plant life of marsh, lowland and upland regions. Lead pupils to observe the natural conditions of soil, moisture and heat that conduce to various kinds of plant growth.

References for the teacher: Practical Agriculture, James, 31–36; Principles of Agriculture, Bailey, 16–28; First Book in Geology, Shaler, 24–29.

Why should you pay particular attention to the plants of the farm? Name five kinds of trees or shrubs that grow in swamps. Name twelve or more kinds of trees that are found in the neighborhood where you

live. Name the common wild flowers of the field and forest. Name the wild animals found in your district. Explain the difference between the vegetation found in marsh and upland regions; between that found on the north or south side of a hill or ridge.

147. Unit V. To have pupils review the lessons on the wants of man and how they are supplied, the products of the farm, their uses and the destination of the surplus products, and to have pupils enumerate the food products, clothing and building materials not supplied directly from the farm, and to learn how they are obtained.

In the work on this unit the farm is considered a commercial center. Because it does not produce all that the farmer needs and more of some things than he needs, its surplus products must be taken to some other center and there exchanged for products which the farm does not supply. (See Unit 10, p. 153.)

148. Unit VI. To have pupils learn of the natural conditions that make the productions of the home center possible, and to learn how man takes advantage of natural conditions and changes some of them to suit his needs.

It is impossible in this course of study to outline definitely the character of the work under this unit in each district. If farming is the only industry, the consideration of this unit is comparatively simple. If the community is also a manufacturing center the conditions that contribute to the success of each industry should be considered. If the school is in a mining region, the natural conditions that constitute a basis of the industry should be considered. In general the attempt should be made to show that the character of the occupations depends in a great measure on the physiographic conditions, but that man is of vital importance in taking advantage of the conditions, and often changes them to suit his needs.

Select some home industry and outline definitely the work on it to illustrate the work on the above unit.

149. Unit VII. To summarize the industries of the home region.

The following map will be suggestive of the kind of map to be prepared by the teacher to represent the home region and the nearest trade centers:

Suppose the above map represents your home region and neighboring trade centers, and that your school is the one marked *x*. Pupils should answer questions like the following:

1. What farm products are raised in excess of the needs of the community? Where do the farmers sell their products? Why do they not take them to Smithville? How are the agricultural products shipped from Hayton and Richmond? Why does the railroad run along the river? Why are roads and railroads commercial routes?

2. For what do the farmers exchange their surplus products at the trade centers, i. e., villages and cities?

3. Trace the routes the different farmers take in going to the various trade centers.

4. Will the farmers of this community do some trading at Smithville? Why? There is a store about a mile north of your school. What is the character of the trade it gets?

5. Do the farmers of your home region do most of their trading at Hayton or Richmond? Why? How do the roads running diagonally across the country help the trade of Richmond? Richmond has a population of 3,000, Hayton, a population of 600. Richmond has a bank, Hayton has not. How does that influence the trade of the two places?

6. Point out the cheese factory about a mile north of the school, and the creamery southeast of the school. Indicate on the map the areas tributary to the cheese factory; to the creamery. Do these areas overlap? Why?

7. What other articles are manufactured in your neighborhood and where are they disposed of?

8. Indicate the telephone lines and the free mail delivery routes. How do these help the farmer?

9. Name again the things the farmers near the school sell, the villages and cities where they dispose of their products, and trace the routes by which they travel in going to these centers. Name again the things the farmers need but do not produce and state where they buy these things, and trace commercial routes.

Sketch a map of the region in which your school is located and give a summary of the exports and imports of the region, and trace the commercial routes.

NOTE.—The work with geographical stories should continue throughout the year. See p.154.

SECOND AND THIRD YEAR—MIDDLE FORM.

General Suggestions.

150. It is suggested that during the second year of the Middle Form, teachers should cover the introductory lessons on home geography, the lessons on the globe, and outline maps, and the lessons on North and South America.

In the last year of the Middle Form these lessons should be reviewed briefly during the first month of school. The lessons on Europe, Asia, Africa and Australia should then follow. About two months should be allowed at the end of the year for a general review of the work done in the Primary and Middle Forms. In this review special attention should be devoted to "place" geography and map sketching.

Pupils should be encouraged to do much supplementary reading in connection with the text book work in geography. References to books in the library should be prepared by the teacher.

III—Text Book Lessons on Home Geography.

151. In every elementary text book in geography considerable space is devoted to the study of home geography. Naturally the text book must treat this subject in a very general way. It should be the purpose of the teacher to make clear all statements found in the book by a constant reference to the observational geography of the immediate neighborhood in

which the children live. It is advisable to combine the text book study with excursion work as previously outlined. The time devoted to this phase of geography will depend greatly on the text book in use, but it is safe to say that pupils should not be hurried in their basic work.

IV.—Lessons on the Globe.

Topic 1. Shape and Size of the Earth.

152. Unit I. To have pupils learn the properties of a stationary sphere, and to learn about the shape and size of the earth.

As preparatory to studying about the shape and size of the earth, pupils should be taught to recognize and in an elementary way define the following: Point, line, straight line, parallel, vertical, perpendicular and horizontal lines, circle, circumference, diameter, radius, degree, angle, sphere, horizon.

No elaborate apparatus is needed for teaching the above. A ball painted black may be used in teaching the points and lines of the sphere.

With books open the teacher should make clear every statement found in the text in regard to the shape and size of the earth. This should be done before the teacher assigns the lesson in the book, so that pupils may be in a position to intelligently study the new lesson.

Topic 2. The Rotation of the Earth.

153. Unit I. To learn that the earth rotates, and to learn the effects of the rotation.

Pupils have observed the rising and setting of the sun, moon and stars. Tell them of the immense distances the sun and stars are from the earth. Call attention to the fact that motion in one direction may cause apparent motion in the opposite direction. Lead pupils to realize that it is more probable that the sun and stars appear to move from east to west than that they actually move around the earth, and that this apparent motion is caused by the real motion of the earth from west to east.

Teach in connection with this unit the following terms:

Axis, poles, north and south poles, equator, parallel, hemisphere, meridian, tropic of cancer, tropic of capricorn, arctic and antarctic circles, torrid zone, temperate zones and frigid zones.

Teach the meaning of latitude and longitude and show how they help in locating points on the globe.

Teach how the daily motion from west to east causes the phenomenon of day and night.

154. Unit II. The climate of the world.

The work on this unit should be based largely on the text book in use. Teach what is meant by climate, and locate on the globe and a map of the world the heat belts. Review stories used in previous years calculated to impress upon the pupils the climate of different parts of the earth. See p. 154.

Topic 3. The Great Land and Water Forms of the Earth.

154a. Unit I. To have pupils find and name the great land and water masses of the earth.

Exercises like the following may be introduced: Find and name the continents, oceans and grand divisions. Locate the grand divisions with reference to each other and with reference to the oceans. Name the grand divisions and oceans according to size. Learn to spell the names. Point out the zones, and the parts of each grand division included by them. Find the land hemisphere and the water hemisphere.

If possible a globe should be used in conducting the above exercises.

These lessons should be followed by lessons on the map of the world. Naturally they will be in the nature of review lessons.

NOTE.—Each school should have a large political wall map of the world, preferably a hemisphere map. This should be used in connection with the above lessons and in connection with the library reading in geography and history.

Topic 4. Races of Men.

155. Unit I. To have pupils learn about the races of men and their distribution, and to learn the general facts about the earth as the home of man.

The teacher should review typical stories of people in different lands, and then teach the characteristics of the races of men and the distribution of the races.

Topic 5. Lessons on the Earth as the Home of Man.

156. Unit I. To have pupils learn the general facts about the earth—the home of man. **(140.)**

Teach pupils that about half of the people of the earth get their living by farming. Have them enumerate the different branches of farming. Review the products of the farm which are used for food, clothing or shelter. Tell pupils that these farm products constitute the principal agricultural products of the temperate zones.

Teach pupils the important agricultural products of the hot belts, and their uses. Call attention to the fact that heat and moisture determine in a great measure the character of plant and animal life on the earth.

Point out the unproductive regions of the earth and lead pupils to realize that some deserts are caused by lack of rain and others by excessive cold.

Teach pupils that in different parts of the earth mining and fishing are important occupations, and that many people are engaged in converting agricultural, mining and other products into articles for the use of man. And finally teach pupils that just as the farmer exchanges his surplus products for things that he needs but does not produce, so the different people of the world exchange their surplus products for things which they need but do not produce, and that this exchange of products is called commerce.

V. Lessons on the Grand Divisions Using Text Book and Library Books.

157. The following will suggest the work on North America:

1. The location of North America with reference to latitude, zones and other grand divisions.

2. The boundaries. The area. Compare the area with that of each of the other grand divisions.

3. The surface and drainage.

4. The climate.

5. The political divisions.

6. The land and water forms and cities:

1. Rivers: Mississippi, Missouri, Ohio, Hudson, Potomac, Rio Grande, Colorado, Columbia, Yukon, St. Lawrence.

2. Mountains: Rocky, Sierra Nevada, Alleghany.

3. Lakes: Michigan, Superior, Huron, Erie, Ontario, Great Salt Lake.

4. Gulfs and bays and straits: Baffin Bay, Davis Strait, Hudson Bay, Gulf of St. Lawrence, Gulf of Mexico, Gulf of California, Bering Strait, Chesapeake, and Delaware Bay.

5. Peninsulas, capes and islands: Labrador, Nova Scotia, Florida, Yucatan, Lower California, Alaska, Cod, Hatteras, Sable, Newfoundland, Bahama, West Indies, Cuba, Porto Rico.

Cities: Washington, New York, Chicago, Philadelphia, Boston. St. Louis, New Orleans, San Francisco, Denver, Milwaukee, Montreal, Quebec, Mexico, Vera Cruz, Havana.

7. Pupils should learn to sketch rapidly a map of North America, and insert the above land and water forms.

8. Library reading work on North America should be begun when the geography of this grand division is first taken up. The teacher should prepare references to all books in the library relating to the people, animals, and products of North America.

NOTE—The teacher should prepare outlines similar to the above on each grand division. References to stories relating to each grand division should be prepared.

VI. Summaries.

158. The last few months of the Middle Form should be devoted to a review of the work outlined for the Primary and Middle Forms. The teacher should aim at essentials. Require pupils to give clear, clean-cut summaries of the various topics indicated under tests for promotion.

TESTS FOR PROMOTION.

Before entering upon the work of the Upper Form, pupils should be able to do the following:

1. Draw a map of the home region and summarize the important physiographic features.
2. Name the common rocks of the home region, state how soil is formed, name the different kinds of soil and state how soil may be enriched.
3. Name the important plants and animals used for food purposes which are produced in the home region.
4. Describe the occupations of the people of the home region, the various things they produce, and how they exchange their products.
5. Sketch a map of the home region and surrounding trade centers, and show the commercial relation between the home region and the trade centers.
6. State the effects of the rotation of the earth.
7. Tell stories of characteristic people of different parts of the world.
8. Name the races of men and state their chief characteristics.
9. Draw outline maps of the grand divisions and locate on them the most important land and water forms and cities.

10. Summarize the geography of each grand division and the United States as per outline on North America.

III.—Upper Form.

159. The purposes of the work in the Upper Form are:

1. To furnish pupils the elementary facts of mathematical geography.
2. To give pupils power to interpret maps.
3. To extend the work in industrial geography in the study of the important countries of the world.
4. To give pupils a detailed knowledge of the geography of the United states and of Wisconsin.
5. To give pupils a bird's eye view of the physiographic and industrial geography of the world.

160. COURSE OF STUDY.

First Year—Upper Form.

I. Essentials of Mathematical Geography.

1. Shape and size of the earth.
2. Cause of day and night.
3. Definitions of points and lines, produced by rotation of the earth.
4. The cause of the seasons and the location of the zones.

II. The Earth Studied as a Whole.

1. The wearing away of the land, the work of streams, glaciers, waves and tides and underground water.
2. Temperature, zones and heat belts.
3. Ocean currents.
4. General circulation of the air and rain-fall.
5. Plants and animals, and their distribution.
6. Races of men, and man's progress.
7. Occupations and industries.

III. North America.
1. North America studied as a whole.
2. The United States.
3. Wisconsin.
4. Canada.
5. Mexico, Central America and the West Indies.

Second Year—Upper Form.

IV. South America.
V. Europe.
VI. Asia.
VII. Africa.
VIII. Australia and islands of the Pacific.

Third Year—Upper Form.

IX. Summaries.

161. *General suggestions.*

In teaching the geography of the other countries the method as outlined under the United States should be taken as a guide. The study of each grand division as a whole should be followed by the careful study of the most important countries. The less important countries should also receive attention, but care should be exercised in reserving sufficient time for emphasizing the study of the important countries. The countries of South America which should receive most attention are Brazil, Argentina and Chili; of Europe, Great Britan and Ireland, Germany, Russia and France; of Asia, Japan, China and India; of Africa, Cape Colony and Egypt.

Every school should be supplied with a full set of outline maps in a roller case. These maps should be political maps but there should be also one physical outline map of the world and if possible a physical map of the United States and of Europe.

The rapid sketching of maps should have a prominent place in each year's work and there should be frequent reviews of "place" geography.

Pupils should be encouraged to read many library books during the year, relating to geographical subjects.

The last year should be devoted to the general summary as indicated on pp.184–7, and the last few months of this year should be given to a review of the essentials of the geography of the United States and Wisconsin.

SUGGESTIONS TO TEACHERS AND ANALYSIS OF SUBJECT MATTER.

I. Essentials of Mathematical Geography.

162. The fundamental facts of Mathematical Geography were taught in the Middle Form. These should be reviewed before taking up the subject in the advanced book.

While it has been customary to treat of Mathematical Geography during the beginning of the first year of the Upper Form, it may be best to defer this subject until the end of the year.

II. The Earth Studied as a Whole.

163. The physiography of the home region should be reviewed in connection with the text book study of the topic, The Earth as a Whole.

As a result of the text book study of topics number two, three and four, pupils should be able to—

(1.) Indicate on the map of the world the areas over which the trade winds blow, the areas over which the westerly winds or anti-trades blow, and the three regions of calms.

(2.) Indicate on a map the climatic regions of the world.

(3.) Indicate on a map the ocean currents and state whether they are warm or cold currents.

(4.) State the conditions upon which rainfall depends, and indicate on a map of the world the regions of light, medium and heavy rainfall.

Pupils should not be required, except in a very general way, to state reasons for the above. A possible exception is the topic rainfall. If pupils understand clearly the conditions upon which rainfall depends, the teacher may by judicious questioning get pupils to account for the distribution of rain and snow. The rainfall map of the world should be carefully studied with this end in view. In connection with this topic the teacher may teach a few facts in regard to cyclonic storms and their relation to rainfall in the temperate zones, but it is probably best to postpone the study of this topic until the climate of the United States is considered. If the climate of the world, including temperature, general circulation of the air and rainfall, is thoroughly understood it will greatly simplify the study of any grand division or country.

In teaching topics five, six and seven under the subject, The Earth, as a Whole, show how climate influences the distribution of plants and animals of the earth.

III. North America.

Topic 1. North America as a Unit.

164. Before taking up the text book work on North America the teacher should review what the pupils learned about North America in the Middle Form. Most of the large facts in regard to temperature, winds and rainfall were taught in connection with the study of the world as a whole.

Pupils should make a careful study of the map and text book and be prepared to sketch maps of North America and insert the important land and water forms and cities, the heat and rain belts, and the forest areas. They should be required to recite topically on any subject relating to North America.

Topic 2. The United States.

165. The work on the United States is outlined fully with a view to having it suggest the method to be followed in teaching the geography of the rest of the world.

SCOPE OF WORK.

1. Position.
2. Location of states and their capitals.
3. Location of the important land and water forms and cities:
4. How to sketch an outline map of the United States.
5. Surface and drainage.
6. Climate.
7. Population and character of the people.
8. Industries and commerce.
9. Physiographic and industrial geography of groups of states.
10. Summaries of the most important industries of the United States.
11. Intensive study of a few typical states.
12. Important trade centers.

Unit I. Position.

166. Suggestive map questions which pupils should answer as a result of map-study:

What is the latitude and longitude of the United States? In what zone is it? What climate does this suggest? Through how many degrees of latitude does the United States extend? Through how many degrees of longitude? What is the length in miles of the United States from the Atlantic to the Pacific? The width from north to south in miles? What is the distance in miles between meridian 90° west and the meridian of Greenwich on parallel 40°?

Pupils should be required to summarize this topic somewhat as follows:

The United States lies between the parallel 25° and 49° North latitude, and between meridian 67° and 125° West longitude. It is wholly in the North temperate zone. The northern half has cold winters and warm summers, and the southern half has mild winters and warm summers.

The United States extends through about 25° of latitude and 60° of longitude. The length from the Atlantic to the Pacific ocean is about 3,000 miles; the width from north to south is about 1,500 miles. Meridian 90° W. is about 4,000 miles from the meridian of Greenwich on parallel 40° N.

Unit II. Location of States and Their Capitals.

167. Exercises like the following will illustrate the mode of procedure in teaching this unit:

1. Pupils should find the states and their capitals on the maps in their book and learn to spell the names.

2. They should answer questions like the following, first, while looking at the map, then without looking at the map: Name the states that border on Wisconsin. Name the states on the east bank of the Mississippi beginning with Wisconsin. Name the states bordering on the Great Lakes in order, beginning with Minnesota. Name the states bordering on the Atlantic Ocean, Gulf of Mexico and Mexico, in order, beginning with Maine. Through what states would you pass in going directly west from Wisconsin. Locate in space, by pointing, the different states as they are named by the teacher or pupils.

168. Unit III. Location of the Important Land and Water Forms and Cities.

The teacher should make a list of the important land and water forms and cities to be learned by pupils. This list should not contain too many names.

169. Unit IV. How to Sketch an Outline Map of the United States.

The teacher should enclose a map of the United States by a rectangle. Pupils should determine the proportions of the rectangle. They should then observe the points in the rectangle where the outline of the map touches the sides of the rectangle. They should practice sketching maps of the United States, always drawing the rectangle first.

170. Unit V. Surface and Drainage.

The teacher should require pupils to determine the surface and drainage from a careful study of the physical map in the text book. The text book should be studied to secure the sum-

mary. In connection with this topic pupils should read and report on the topics relating to this unit.

Pupils should be required to sketch rapidly a map of the United States and indicate thereon the principal highlands and lowlands and drainage systems.

References:

The Great Lakes: King's Geographical Reader, Book II, 129-139; Carpenter's North America, 172-179, 190-195; World and its People, Vol. IV, 68-83; Guyot's Geographical Reader, 46-56; Around the World, Bk. 3, 63-73.

Mississippi River: King's Geographical Reader, Book II, 98-108; King's Geographical Reader, Book IV, 31-42; Carpenter's North America, 135-138, 150-159; Guyot's Geographical Reader, 26-37.

Niagara Falls: Carpenter's North America, 195-202; Our Country: East, 3-8; Around the World, Book 3, 23-27; Wonders of Nature, 79-89.

Mammoth Cave: Our Country: East, 57-64; Century Book of Famous Ameri ans, 173-174; Wonders of Nature, 283-294; Nagle's Philosophy.

Great Salt Lake: Carpenter's North America, 259-264; Around the world, Bk. 3, 147-149; Nagle's Philosophy.

Grand Canon: Our Country: West, 161-166; Carpenter's North America, 259-264; King's Geographical Reader, Book II, 109-119; Nagle's Philosophy.

Florida Everglades: Our Country: East, 96-100; Nagle's Philosophy.

Hudson River: Guyot's Geographical Reader, 27-46.

Yellowstone Park: Picturesque Geographical Reader, Bk. 2, 46-57; Our Country: West, 78-85; Nagle's Philosophy.

171. Unit VI. Climate.

A study of the map should precede the study of the text book. Questions like the following should be asked: Between what parallels of latitude does the United States lie? What does that suggest in regard to climate? Name the ocean currents that flow along the coast of the United States. What is the character of each in regard to temperature? In what wind zone is the United States? What temperature do the west

winds bring to the western coast states in summer? In winter? Is the region of the Rocky Mountains and Great Plains warm or cold in winter? In summer? What is the temperature of the winds blowing from these regions in summer? In winter? Do the west winds that blow from the ocean bring rain to the west coast in winter? In summer? Why? Are the west winds blowing from the Rocky Mountain region and Great Plains rain-bearing winds? Why? What makes it possible for the warm south winds to sweep across the United States? Do they bring rain? Why is the New England coast cooler in winter than the coast of Washington or Oregon?

After pupils have answered questions like the above they should study the temperature and rainfall charts found in their text books and attempt to explain the broad climatic regions and rainfall.

They should then study their text books for a summary of the unit, Climate.

As one of the tests on this unit pupils should be required to sketch rapidly a map of the United States indicating the temperature belts and the rainfall area.

In connection with this unit the teacher should give the pupils elementary notions of cyclonic storms of the United States and their effect on rain fall. As a preparation for teaching this topic it would be well for the teacher to carefully study the discussion of cyclonic storms in Harrington's little book, "About the Weather," "Tarr's Elementary Physical Geography," or any other good physical geography.

172. Unit VII. Population and Character of the People.

Pupils should be required to find out the population per square mile of the region east of the Mississippi. Comparisons should be made with England, Germany and other countries. Pupils should then study the unit as presented in the text book and summarize it.

173. Unit VIII. Industries and Commerce of the United States.

This unit can be resolved into the following sub-units:

1. Agriculture and horticulture. 2. Fishing. 3. Lumbering. 4. Mining. 5. Herding. 6. Manufacturing. 7. Chief exports and imports.

174. The teacher should review briefly the surface and drainage, and climate of the United States, and the physical conditions that determine the production of cereals and other food products. Then under the direction of the teacher they should locate the great agricultural regions and name the probable products. They should then study their text books for detailed and accurate information and summarize each topic. The subject "Irrigation" should be studied in connection with this unit.

Unit IX. Physiographic and Industrial Geography of Groups of States.

175. This unit may be resolved into the following sub-units:

1. The New England States. 2. The Middle Atlantic States, 3. The Southern states of the Mississippi river basin. 4. The Northern states of the Mississippi river basin. 5. The Plateau states. 6. The Pacific slope States. 7. Possessions of the United States.

The following treatment of the geography of the Pacific Slope states will suggest the method of procedure for teaching each sub-unit:

In teaching this unit the teacher should review and apply what pupils already know relating to the subject. Thus pupils can be made to realize that often the fundamentals of a new subject are already known to them and need but be applied to new conditions. The teacher should review so much of the surface, climate, people, and production areas of the United States as relates to the Coast states.

This review and the topic the "Surface and Coast" might constitute the first day's work on this unit. Under the direc-

tion of the teacher, pupils should study a physical map of the United States and answer questions like the following: Point out the mountainous regions. Point out the lowland plains. What parts of California and Oregon belong to the great plateau belt? How high are the Sierra Nevada mountains? The Coast range? The plains? Locate the harbors on the coast.

As a preparation for the next day pupils should review the above questions and search their geographies and geograpical readers for facts on the surface and drainage of the Coast states. A few pupils should be required to prepare on special topics to report in class the next day. Topics like the following may be suggestive: The Sierra Nevada mountains, Death valley, Yosemite valley, Columbia river.

The next day pupils should be required to summarize this unit and list to reports on special topics. The assignment for the next day might be placed on the board as follows:

(1) Name the states on the Pacific coast, according to size.
(2) Compare the area of each with that of Wisconsin.
(3) Locate the important rivers and cities in each state.
(4) Find the population of each state and compare it with that of Wisconsin.
(5) What is the population of each state per square mile? Make comparisons with the population of Wisconsin?
(6) What in general is the character of the people?
(7) Summarize this unit.

The next day pupils should answer questions like the above, and then summarize the unit. As a preparation for the following day they might be required to write on the topic, Surface and Drainage of the Coast States.

The recitation time of the following day should be spent in discussing with the pupils questions relating to the climate of these states. Questions like the following should be considered:

Locate the group of states in the wind zones of the earth. What ocean current sweeps along the coast? What is the temperature of the winds blowing from the ocean in winter? In

summer? The New England states are in the same latitude as Washington and Oregon. Explain the difference in climate. Where and when is the rainfall the heaviest in the Pacific coast states? Why has Southern California so little rain? Why is the climate much drier east of the mountains? Why are the summers much hotter and the winters much cooler east of the mountains than they are west of the mountains?

Possibly all of the questions cannot be considered in class. They should then be written on the board to be worked out by pupils. They are problem questions and appeal to the reasoning power fully as much as do problems in arithmetic.

After the subject of climate has been considered in class, pupils should search their geographies for facts, and summarize the unit. This may be done either orally or in writing.

Pupils are now ready to study the topic "Occupations and Industries." While some work preliminary to the study of the text book should be undertaken most of the time should be devoted by the pupils to studying their text books and geographical readers. Pupils should be required to report on special topics like the following:

The Fairy Land of California, 264–274, Carpenter's North America; Raisin Making, 143–147, Our Country: West; Big Trees of California, 132–133, Our Country: West; Salmon Fishing, 281–283, Carpenter's North America; San Francisco and the Chinese, 274–278, Carpenter's North America; Nagle's Philosophy. 19–29

Finally the pupils must summarize what they have learned. The following outline will be suggestive:

1. Surface and drainage.
2. Climate: Temperature, winds and rainfall. Comparison with other parts of the United States.
3. Industries and principal products.
4. Collecting and distributing centers.
5. Exports and imports and commercial routes.
6. The principal products for which each state is noted.

176. Unit X. Summaries of the Most Important Industries of the United States.

The following industries should be considered:

1. Wheat and flour: 2, Corn and corn meal; 3. Cattle and dairying; 4. Coal and iron; 5. Lumber; 6. Leather; 7. Petroleum; 8. Wool and woolens; 9. Cotton; 10. Sugar and rice.

The following suggestions on the teaching of the sub-unit "Wheat and flour" will suggest method of treatment of the other sub-units.

In most geographies maps are found showing production regions. Pupils should indicate the important wheat regions and from their text books and table of statistics gather facts in regard to the population of these regions, and determine whether there is a surplus of wheat raised. They should learn the most important collecting and distributing centers for wheat and flour, and the ocean-exporting centers and commercial routes. They should find out what countries buy our surplus wheat and flour and how they pay for these products. Pupils should read and report on as many of the references under "Wheat and Flour" as possible.

> Wheat and flour: Great American Industries, Vol. II, 150-178; Carpenter's North America, 164-171; Stories of Country Life, 14-17; Around the World, Bk. 3, 76-81; Payne, Geographical Nature Studies, 104; Corn Plants, 75-79; Home Geography, 88-92.

The teacher should prepare references to books in the library treating of the various industries which should be used in a similar manner in which those on wheat and flour were used.

After each industry is taught, pupils should be able to sketch rapidly a map of the United States, indicate area of production, and summarize either orally or in writing the entire topic.

177. Unit XI. The Study of Certain Typical States, e. g.:

1. Texas. 2. California. 3. Minnesota. 4. Colorado. 5 Pennsylvania. 6. Massachusetts. 7. New York.

LIBRARY OF THE UNIVERSITY

In the work on individual states the teacher should first have the pupils tell all they know about the particular state that is studied. If the work on the sections of the United States is properly done it will be found that pupils will give a fairly exhaustive summary of the geography of each state without appealing to the text book for facts.

178. Unit XII. Important Trade Centers.

The following trade centers should be considered: 1. Duluth-Superior. 2. St. Paul-Minneapolis. 3. St. Louis. 4. Chicago. 5. Milwaukee. 6. New Orleans. 7. San Francisco. 8 Tacoma-Seattle. 9. Baltimore. 10. Philadelphia. 11. Boston. 12. New York.

The following will suggest a method of procedure in teaching the trade center, Chicago:

With books open pupils should be led to observe that Chicago is in the center of the great agricultural region of the United States; that it is a center of many railroads which make the agricultural region tributary to it; that Chicago has water communications with the cities along the Great Lakes and New York, and with the cities on the Mississippi river; that Chicago has railroad and water communications with the great lumber, iron, and copper regions of Minnesota, Wisconsin, and Michigan; that Chicago is within easy access of the coal fields of Illinois, and that it has railroad and water communication with the great coal fields of Pennsylvania.

Pupils should study their text books and tables of statistics and be prepared to make a summary of Chicago as a collecting and distributing center. They should rapidly sketch a map of the United States and trace the movements of lumber, wheat and corn, live stock, iron, coal, etc., to and from Chicago.

The other trade centers of the United States should be taken up in a similar way.

Topic 3. Wisconsin.

179. Scope of work.

1. Position.
   a. Absolute and relative.
   b. Influence of position on climate.
2. Area and population.
3. The principal land and water forms and cities.
4. How to sketch an outline map of the state.
5. Surface and drainage.
6. Climate.
7. The agricultural regions.
8. Lumbering.
9. Mining.
10. Paper and pulp industry.
11. Quarrying.
12. The important trade centers of the state.

180. Unit I. Absolute and Relative Position.

A study of the map should precede the study of the text book. Questions like the following should be asked:

1. Between what parallels does Wisconsin lie? Between what meridians? What is the greatest length of Wisconsin from north to south? From east to west? Estimate in miles the length of the shore line upon the lakes. How far is Wisconsin from the Gulf of Mexico? From the equator? How far is it from the Atlantic ocean? From the Pacific? How far is meridian 90° W. from the meridian of Greenwich, in degrees? In miles?

2. Bound Wisconsin. Bound Michigan. What marked difference is there between the boundary of Wisconsin and Michigan? Through what states, countries, and bodies of water does meridian 90° W. pass? Parallel 45° N.?

Pupils should summarize this unit.

181. Unit II. Area and Population.

Pupils should be required to compare the area of Wisconsin with that of other states, and with the area of the most impor-

tant countries of Europe. They should compare the population of Wisconsin, per square mile, with that of Germany, France, Denmark, and Belgium.

182. Unit III. The Principal Land and Water Forms and Cities.

The teacher should make a list of the important land and water forms and cities of Wisconsin and have pupils find them on the map. Conduct drill exercises as suggested by the following:

Name the cities on the Wisconsin river beginning with Prairie du Chien. Name the cities on Lake Michigan beginning with Kenosha. Point in the direction of Milwaukee, Madison, Ashland, Oshkosh, etc. What direction is Oshkosh from Manitowoc? From Janesville, etc.? How far is it from Sheboygan to Milwaukee? Use this distance as a unit of measurement in estimating the distance between Milwaukee and Madison, between Superior and Green Bay, etc.

183. Unit IV. To Sketch an Outline Map of Wisconsin.

The teacher should carefully draw an outline map of the state on the blackboard and enclose it by a square and have the pupils study the map to get a picture of its form and outline. Pupils should then practice sketching the map, always first drawing the square.

184. Unit V. Surface and Drainage.

Sketch a physical map of Wisconsin on the blackboard and by means of questions like the following lead pupils to interpret the map:

1. Name the rivers that flow into the Mississippi. In what general direction do the rivers flow? How does the land slope that is drained by these rivers? Name the rivers that flow into Lake Michigan and Lake Superior. What do these rivers tell us of the slope of the land? Draw a dotted line on the map, separating the head waters of all the rivers flowing into the

Mississippi from those flowing into Lakes Superior and Michigan. What does this line represent? To what two great basins does Wisconsin belong? Draw dotted lines enclosing the basin of the lower Wisconsin river, and also lines enclosing the basin of the Fox including Lake Winnebago. Are these basins practically continuous?

Pupils should then study this unit as presented in their text book.

As a final test they should be required to rapidly sketch a map of the state and summarize the entire topic.

185. Unit VI. Climate.

The teacher should bring the knowledge pupils already have to bear on this topic. Questions like the following may be suggestive:

1. In what zone is Wisconsin? In what part of North America? In what wind zone? Where do the winds come from that blow over Wisconsin in winter? What climate do they bring? Where have the winds been that blow over Wisconsin in the summer? What is the temperature of those regions? Compare the winds of Wisconsin with those of California and Oregon in summer. In winter. Explain the difference. What effect have Lake Michigan and Lake Superior upon the climate of the state? Compare the climate of Michigan with that of Wisconsin. Account for the difference.

2. In what rainfall region of the United States is Wisconsin? Explain that the rainfall of the state is due to cyclonic storms. What is the average rainfall of Wisconsin? Why is it important that about half of the amount of rain falls in spring and summer? Do the crops in Wisconsin get sunshine longer than those in the southern states? What is the effect of this?

Pupils should study the text book and then summarize the entire topic, "Climate."

186. Unit VII. Agricultural Products.

Pupils should search their text books for facts relating to soil and agricultural products and then sketch a map indicat-

ing (a) the fertile soil regions; (b) the comparatively unfertile soil region. Name the important agricultural products of the state. In what parts of the state is stock raising an important occupation? Locate the important potato region.

Locate the principal cranberry marshes. In what part of Wisconsin is tobacco raised? How is tobacco cultivated and cured? What are the most important tobacco centers in the state? What does the text book say in regard to dairying and cheese making in the state? Where would you expect to find the greatest number of creameries and dairies? Why?

In summarizing this unit pupils should be encouraged to make use freely of sketch maps in indicating agricultural areas.

187. Unit VIII. Lumbering.

Pupils should search their geographies for facts in regard to this industry and summarize by doing the following:

1. Sketch a map locating the lumber region and name the different kinds of lumber produced.
2. Name the important lumber centers of the state.
3. State how the lumber reaches the market.
4. Woodenware factories and their products.

Pupils should read, or listen to formal talks by the teacher on the following:

1. Past conditions of timber area of Wisconsin.
2. Present conditions.
3. Remedial and protective needs.
   - (a) How European countries manage their forest areas.
   - (b) How waste can be prevented by forestry management. (1) Fires. (2) Proper methods of cutting timber.
   - (c) How the forest areas may be restocked.
   - (d) What schools can do in creating public sentiment.

NOTE.—A good book on "Wisconsin Forests" is Bulletin 1 of the Wisconsin Geological and Natural History Survey, by Filbert Roth.

188. Unit IX. Mining.

Pupils should search their geographies for facts in regard to iron and lead mining, and manufacturing industries, and answer questions like the following:

Where are the important iron, lead, and zinc regions of Wisconsin? How is iron ore mined and smelted? What is Bessemer steel? How is steel made? Name important iron products. How is lead ore mined and smelted? What are the important lead centers? For what purposes are lead and zinc used? Name the cities engaged in the lead and zinc industries.

Pupils should sketch maps showing the lead and iron regions of the state.

A summary of the iron and lead industries of the state should be called for at the close of the work on this unit.

189. Unit X. Paper and Pulp Industry.

The teacher should review briefly what the pupils have learned about pulp and paper making. The pupils should then be required to search their geographies for facts in regard to the paper and pulp industry of the state, and answer questions like the following:

What cities are engaged in the manufacture of pulp and paper? What natural conditions help to make Wisconsin so important a state in the manufacture of pulp and paper? Describe the manufacture of pulp and paper.

190. Unit XI. Quarrying.

After a study of the text book pupils should answer questions like the following:

Enumerate all the purposes for which limestone and granite are used. Search your text books for facts in regard to "quarrying" and then summarize the unit.

191. Unit XII. The Trade Centers of Wisconsin.

Teach the largest trade center of the county in which your school is located according to the following outline:

1. Indicate the area of the tributary region. What does this

region produce in excess of its needs? What is the function of the smaller trade centers in this region? How do the surplus products reach the city?

2. Is the city the final market for the products of the tributary region? What is the destination of the products? Has the city any advantages of position as an exporting center? What do the people in the tributary region consume that they cannot or do not produce? Where do they obtain these things? To what extent does the city act as a distributing center for this region? How does the city obtain the manufactured products, groceries, coal, etc.? What articles are manufactured in the city?

3. Pupils should practice sketching a map indicating the above, and then give a summary of the city as a trade center.

Pupils should search their text books for facts relating to the fifteen most important cities of Wisconsin, and indicate the probable trade area of each, and state the imports and exports of each.

NOTE.—In teaching the geography of the other countries the method as outlined under North America and the United States should be followed. The study of each grand division as a whole should be followed by the careful study of the most important countries. The less important countries should also receive attention, but care should be exercised in reserving sufficient time for emphasizing the study of the important countries. The countries of South America which should receive most attention are Brazil, Argentina and Chili; of Europe, Great Britain and Ireland, Germany, Russia and France; of Asia, Japan, India and China; of Africa, Cape Colony and Egypt.

General Summary.

192. The last few months of the Upper Form should be devoted to a general review of the geography of the world and a special review of the geography of the United States and Wisconsin. The topics and questions indicated below will cover the subject matter for review:

1. Name and locate the capes, peninsulas, islands, gulfs, bays, straits, plateaus, mountains, plains, countries and cities of the world.

2. State the size and shape of each grand division and sketch a map of each.
3. Describe the surface of each grand division of the United States and of Wisconsin.
4. Name the countries and bodies of water through which the equator and each of the tropic circles pass.
5. State the population of each grand division and state the chief characteristics of the people.
6. State the cause of day and night.
7. State the causes of the seasons.
8. Name the principal rocks. What is soil? Name the different kinds of soil and state the relative productivity of each.
9. Describe the wearing away of the land.
10. State how the land becomes heated and cooled. Why is land surface much colder in winter and much warmer in summer than water surface?
11. Name the wind zones of the earth. What are the trade winds and over what region do they blow? Name the belts of calms and define each. Describe the monsoons of the Indian Ocean. Over what parts of the earth do the prevailing westerlies blow? Describe the effect of winds on climate.
12. Name and describe the important ocean currents. How do ocean currents affect climate?
13. State the conditions necessary for rainfall. On a map of the world indicate the regions of heavy, moderate and light rainfall. State reasons for differences in rainfall.
14. Name and locate the broad climatic zones of the earth. Name the plants and animals of the various zones.
15. On a map of the world indicate the regions where cotton is produced, and name the important cotton exporting cities. Do the same with wheat, corn, beef and hides, rice, sugar, coffee, tea, wool, lumber, iron, coal, petroleum, gold, and silver. Trace in each case the commercial routes.

16. On a map of the world indicate the important manufacturing regions and name the principal articles manufactured. Trace the commercial routes.
17. Discuss the following topics:
    a. How water power helps in locating manufacturing centers.
    b. How nearness to raw materials helps to determine the location of manufacturing industries.
    c. How steam and electricity assist in developing manufacturing industries.
    d. How rivers and harbors, canals, telegraphs and telephones affect industrial development.
    e. How governments help commerce.
18. Name the principal fishing regions of the world and the products or kinds of fish.
19. Name the principal exports and imports of New Orleans, and trace the ocean routes. Do the same in regard to Vancouver and Seattle, Duluth and Superior, Chicago, Buffalo, Montreal, Boston, Philadelphia, Baltimore, New York, Liverpool, London, Antwerp, Hamburg, Havre, Marseilles, Odessa, Para, Rio Janeiro, Montevideo, Buenos Ayres, Valparaiso, Vera Cruz, Cape Town, Bombay, Calcutta, Hongkong, Shanghai, Yokohama, Melbourne, Manila.
20. On a map of the world show the distribution of the different races of men. State the characteristics of each race. What races are hindered by climatic conditions from becoming highly civilized?
21. On a map of the world indicate density of population of various regions. State to what the density or sparseness of population may be due.
22. On a map of the world indicate the distribution of the chief religions. State characteristics of each religion.
23. Name the seven greatest powers of the world and state what constitutes their greatness.
24. What factors contribute to make the United States the greatest food producing and exporting country of the

World? Name the principal food products. Name the principal countries to which these products are exported, trace commercial routes, and state how each country pays for the food products.

25. What factors contribute to make the United States the most important manufacturing country of the world? Name the most important classes of articles manufactured, and the principal countries that buy our manufactures. What do we get in return? Trace commercial routes.
26. What political significance attaches to the fact that the United States exports large quantities of products used for food, clothing and shelter?

TESTS FOR GRADUATION.

193. A written examination at the close of the work in geography should show that the pupils are able:

1. To locate the important land and water forms and cities of the world.
2. To sketch a map of each grand division and the United States, and be able to describe the surface and drainage of each.
3. To describe the general circulation of the air, and the rainfall regions of the world.
4. To locate the important agricultural, mining and manufacturing regions of the world, and name the surplus products of each.
5. To name the most important ocean seaports and state the exports and imports of each and commercial routes.
6. To sketch a map of Wisconsin, indicating natural features and production areas, and state the important products, and collecting and distributing centers.
7. To sketch a map of the United States and indicate on it the important production areas, collecting and distributing centers.
8. To answer problem questions on the geography of the United States and on the world.

CIVICS.

Middle Form.

194. Purpose:—

To make pupils familiar by means of informal exercises with the more obvious workings of local government, with elementary ideas of the State and National governments, and to stimulate thinking along the lines of good citizenship.

COURSE OF STUDY.

195. I. Government of the Home.

Parents provide the home, food, shelter, comforts, care, encouragement,—and children should give ready and cheerful obedience to parents.

Suggestive questions:—What is the nature of the government of parents when children are good? Not good? Did you think you deserved the punishment you received for not being good? Do the opinions of the children have any weight in the family government? What duties are assigned you in the work of the home?

196. II. Games.

Baseball Team:

a. The membership is usually made up of those who play.

b. Rules are made by a body of competent men.

c. Captain is selected to direct players to utmost advantage. What are the qualities noted in a captain? By whom elected? Was he elected on his merits or were other influences at work? What are his duties? Do players ever object to his commands? How? Why? Is there rebellion among the players? How is it overcome?

d. In playing other teams the services of an umpire are necessary. Why? Is his decision final? In what respect may he err? What is the attitude of the players to errors made by him? Are the players right in objecting to his decisions? What are the qualities of a successful umpire?

e. What expenses are sustained? Who supplies the funds? Who handles the funds? Qualities of a treasurer?

f. How does the team secure games?

g. Could the management of team be improved?

The organization and business of a baseball team exemplify the functions of legislative, executive, administrative, and judicial activities, and bring the concrete experience of the pupils to bear on these activities when applied to actual governments later.

Other athletic organizations exemplify similar principles.

197. III. Public Property.

In every community some things, such as schoolhouses, town or city halls, roads, streets, bridges, and parks, belong to all of the people. Such property is called public property. Property, such as houses, farms, cattle, tools, implements, boats and other things belonging to individuals, is known as private property.

Suggestive questions:—Name the different kinds of public property in your town. What use is made of it? Who makes the rules governing the use of it? What happens when one violates these rules?

198. IV. The School:—

a. The school is an institution whose purpose is to furnish good citizens.

b. It is made up primarily of teacher and pupils.

c. A comfortable building with suitable desks, furniture, apparatus, and books, is necessary,

d. These, with the salary of teacher, are expenses that must be met.

e. These expenses must be determined by the school board, and by the voters of the school district,—and the money for defraying them is secured by taxation.

f. The three members of the board are chosen by the voters for a term of three years each, and their duties include the hiring of teachers, the care of the school property, the visitation of the schools, and recommending means for the improvement of the schools, to the annual district meeting. What men should be selected to serve on the board? Do all go into office at the same time?

g. The school board, with the co-operation of the teacher, may make rules for the government of the school. What should be the attitude of the pupils toward those rules? What is the effect of disorderly conduct, of untidiness, of carelessness, of not preparing good lessons, of tardiness, or of irregularity of attendance on the work done in the school?

Other questions:—What were the expenses of running the school in your district last year? The expenses for each pupil enrolled? Just how does the teacher secure pay for services? Read the order. What does it tell you? Write such an order. What does the county superintendent do when he visits your school? Can you suggest anything that pupils might do to improve the work done by the school? Appearance of grounds? What is the area of your district? Is the school house desirably located? How might the state or nation assist in paying the expenses of the schools? What subjects are taught? Who determines these? What books in your school library would give you information bearing on the schools? What would happen were there no schools? Do you know some countries

of the world having few schools for the education of the children?

199. V. The Town.

a. Usually covers an area six miles square.

b. Public works such as roads, bridges, and town halls are found.

c. In April a town meeting is held, at which all of the voters of the town are expected to be present, to take part in the discussions and to vote.

d. At this meeting the officers of the town are selected, the amount of taxes for the ensuing year is levied, and ways and means for the improvement of the town are discussed and voted upon.

e. The officers chosen are a chairman and two other supervisors who make up the town board, a clerk, treasurer, assessor, justices of the peace, and constables.

f. These officers have their special duties and, except justices of the peace, are elected for one year.

g. Reports of the government of the town are read, and recommendations for the ensuing year are proposed.

h. The town meeting trains voters in the method of carrying on good government, enables those who take part to see more than one side of a question, and trains them to keep their temper under control.

Suggestive questions:—What was done at the last town meeting? What improvements were suggested? Do you think of others that might be made? Who seemed to be leaders in the discussions? What qualities did they possess? What was the amount of taxes raised last year? For what purposes was the money expended? What does a tax receipt tell you? Who has

charge of the money? What is there to prevent him from using it for his own purposes? What is the work of the assessor? If a man steals property in your town what officers would see to it that he was tried? What rights do you think an accused person should have? What people can vote at the meeting? Should others be given that right?

200. VI. County.

a. Counties are made up of towns, cities and villages and are created by the state legislature.

b. The functions of a county are to establish justice, to provide public works which towns alone could not do, and to provide for the keeping of public records such as deeds of lands and wills.

c. The county board is made up of a member from each town, village and ward of a city, and its business is to make laws for the county.

d. The executive officer of a county is the sheriff, who preserves public order and brings wrongdoers to justice.

e. Taxes are collected by the county treasurer who pays out money on the order of the clerk and chairman of the county board.

f. Other county officials are the register of deeds, clerk, clerk of court, district attorney, superintendent of schools, surveyor and county judge.

Suggestive questions:—How many counties in Wisconsin? The area and population of your county? The county seat? Is it centrally located? How many members in the county board? What were the expenses of your county last year? What portion did your town pay? How was it determined? What does a deed tell you? Why should we have a county judge? What could one learn by a visit to the court house? What differences do you note between the town meeting and county board meeting?

201. VII. The state.

a. The state is made up of a large number of counties, governed according to a constitution.

b. The state capitol, where the governor resides, and the legislature meets, is Madison.

c. The legislature is made up of two houses, a senate of thirty-three members and an assembly of one hundred members, elected by the voters of the state.

d. The legislature makes the laws for the people of the state, and these laws must receive the assent of the governor.

e. The governor is the executive officer of the state, and is elected by the voters of the state.

f. The supreme court of the state meets at Madison and tries cases arising under the state laws. It has final decision upon important cases, and may declare a law unconstitutional.

Suggestive questions:—When and how did Wisconsin become a state? What is its area? Its population? Bound Wisconsin. Who can vote in Wisconsin? Who must obey the laws? Where would you find the laws that are in force in Wisconsin? Do you know some important measures passed by the last session of the legislature? For what purposes does the state expend most money? Name the governor. By what party was he elected? What do the pictures in the Blue Book tell you about the government of Wisconsin? Who is your assemblyman? Your senator? What political party has a majority in the legislature?

202. VIII. Nation.

a. The nation is composed of forty-five states.

b. Laws are made by congress which is composed of a senate of ninety members, and a

house of representatives of three hundred and eighty-seven members.

c. Congress enacts such laws as the constitution empowers it to enact.

d. These laws are signed by the president who executes them.

e. Most officers of the United States are appointed, and for most positions those who desire to secure them are obliged to pass a written examination.

f. Our relations with foreign countries are governed by treaties made by the president and senate.

g. The supreme court of the United States has jurisdiction over important questions arising under the constitution of the United States.

Suggestive questions:—How much money is expended by the United States annually? How is this money secured? What different kinds of United States money have you seen? Who is your representative in congress? Who are your senators? Who are citizens? Name the president and vice-president. Who chooses them? What were the boundaries of the United States when the constitution was adopted? What are its present boundaries? Name the political parties of the United States. How are we protected against foreign countries? The population and area of our country? What would a visit to the White House teach you? Why is not Washington centrally located?

Upper Form.

COURSE OF STUDY.

203. United States constitution.

I. Brief review of the historical events leading to the formation of the constitution. (See History Outline.)

II. Preamble:—Source of power recognized, purposes stated.

III. Legislative.

1. Reasons for having two houses.
2. Study each house as to membership, eligibility, vacancies, officers, powers, salaries.
3. Who are the senators from Wisconsin? The member of the house of representatives from your district?
4. The process of law making, and the importance of committees in the process. How committees are selected in each house. The great powers of the speaker.
5. The powers of congress. Congress can enact such laws only as are authorized or implied by the constitution of the United States, or such laws as are necessary to good government under the constitution.
6. Financial powers.
   a. The amount of money needed to run the government.
   b. Power to levy and collect taxes. Learn Cl. 1, Sec. 8, Art. I. See also Cl. 3, Sec. 2, Art. I; Cl. 4–5, Sec. 9, Art. I; Cl. 2–3, Sec. 10, Art. I. (Cl=clause.)
   c. Where bills for revenue must originate.
   d. Distinguish direct and indirect taxes, duties, tariff, imposts, excises, customs, internal revenue.
   e. The great difference in mode of national and state taxation.
   f. Power to borrow money. How this is done. Present debt.
   g. Coining of money.
   h. Punishment for counterfeiting.

7. Commercial powers.
   a. Learn Cl. 3, Sec. 8, Art. I. See also Cl. 5–6, Sec. 9, Art. I.
   b. Who are immigrants? Number coming each year. Would you be in favor of encouraging or restricting immigration? How?
   c. Name some great acts of congress in relation to commerce.
8. How a foreigner may become a citizen.
9. The postal system.
10. The military powers. See Cl. 11, 12, 13, 14, 15, 16, Sec. 8, Art. I.
11. The implied powers, Cl. 18.
12. Name some great measures considered at the the present or last session of congress.
13. Name some powers denied to congress and the several states. Sections 9 and 10, Art. I.

204. IV. The Executive.
1. Where vested?
2. Constitutional provisions as to choosing a president.
3. How political parties carry out those provisions.
4. The elections of 1800 and 1876.
5. The powers and duties of the president.
6. The Spoils system and Civil Service Reform.
7. Recommendations of the president to congress in his last message.
8. The cabinet and its work.
9. Impeachment.

205. V. The Judiciary.
1. Where vested.
2. Term of office and mode of selection of judges.
3. The principal courts and their jurisdiction.

4. The rights of accused persons. Sec. 3, Art. III, Am. IV, V, VI, VII, VIII.
5. Treason—its definition and punishment.

206. VI. The relations of states, return of fugitives from justice, admission of new states, control of territory, and guaranty of republican form of government. Art. IV.

207. VII. How constitution may be amended. Art. V.

208. VIII. Supreme law of the land. Art. VI, Sec. 2.

209. IX. Oath of office. Art. VI, Sec. 3.

210. X. Ratification. Art. VII.

211. XI. Slavery abolished. Am. XIII.

212. XII. Citizenship and suffrage. Am. XIV, XV.

WISCONSIN CONSTITUTION.

213. I. Fundamental principles of the bill of rights. Find similar provisions in the United States constitution.

214. II. The qualifications of voters. Art. III.

215. III. The legislature: Its composition and powers. Compare congress. Measures of importance enacted at last session. Problems for present or next session. Art. IV.

216. IV. The executive—Qualifications. Powers and duties of governor. Art. V.

217. V. The administrative as distinguished from the executive. The Blue Book gives pictures of many of the institutions under the control of the administrative department. Art. VI.

218. VI. Judiciary: Courts named and brief consideration of jurisdiction. Manner of selecting judges. Description of trial in justice court. Art. VII.

219. VII. Finance.

a. Amount of money needed to meet expenses of the state.
b. Sources of state revenue.
c. The levy, apportionment, assessment, and collection of taxes.
d. The taxation of corporations.
e. Property exempt from taxation.

Art. VIII.

220. VIII. Education.

a. Purpose of providing schools.
b. Who may and must attend.
c. How expenses are met.
d. The meaning and amount of the school fund.

Art X.

221. IX. How the constitution is amended. Art. XII.

POLITICAL PARTIES.

1. Definition and purpose.
2. The great parties and their leaders today.
3. What these parties believe about the government. What questions divide them? What questions formerly divided them?
4. How parties nominate candidates for office. The Primary Election Law in Wisconsin.
5. The party committees and what is expected of them.
6. How campaigns are conducted.
7. How people vote. The Australian Ballot System.
   a. Purpose of the system?
   b. What does the ballot contain?
   c. Who prints it? Why?
   d. How does the voter mark it?
   e. Secure a sample ballot and study it.

8. What are the qualities of a good citizen, and what should be his attitude toward parties?

SUGGESTIONS TO TEACHERS.

222. Since the public school is maintained in the interest of good citizenship, the pupils should have a chance to learn the things needful for them to know in order to do well their part in the management of public affairs. For the highest class in the common school this may include a study of the history, and something of the philosophy of our form of national and state government; but for less advanced pupils it is best to direct their attention mainly to such facts of government, either local or national, as are directly observable by the pupils, or which form matter of general conversation among their elders. Of the first class are town meetings and school district meetings: of the latter are caucuses, conventions, elections, and sessions of the legislature.

Mention some important points to which the first sentence alludes.

223. A suitable method of presenting the main facts pertaining to these subjects is through general exercises, in which those who know anything about the subject discussed may take part; and all can be stimulated to ask questions at home, or to consult the text-books. The best time to present any topic is when it is occupying public attention and is therefore under discussion in the public prints.

How can the teacher best arouse interest in these topics?

224. Where a separate advanced class is possible, any satisfactory text-book may be used and a variety of text-books in this subject is no misfortune. The preceding outline of topics may be considered suggestive only, and by no means exhaustive.

What is the value of using several texts in this subject? What is the danger?

225. If the circumstances of the school permit, the study of the constitution may properly be begun when the class has reached that point in the history of the United States where it became necessary to unite the colonies in some form of government. The later topics in that study have prepared the way for the introduction of this, which may accompany the study of the constitutional period in history, or be taken later, separately, as a means of review of political history.

Why should the study of the Colonial Period precede the study of the Constitution?

Study the constitution *topically*, until its more obvious purpose, spirit and meaning are grasped, and the form of government therein provided is understood.

What is meant by studying the constitution topically?

Subsequently, the constitution may be studied as a whole, in a kind of review, by critical, consecutive reading, accompanied by a skillful questioning upon its meaning and practical application.

What are some practical applications?

Where the work herein suggested has been done with reasonable intelligence and thoroughness, the study of the state constitution will be comparatively easy, full of interest, and will require but little time.

226. Constant reference to real events in the history of the country and of the state will aid in impressing pupils with the fact that these organic laws are documents in which every citizen has a personal, vital interest, and about which he should be well informed.

Why connect the study of constitution so closely with history?

227. The progress of an important bill through congress may be traced by the aid of the newspapers. The opening and closing of the annual sessions may be studied in like manner, and reference should be made to the section or clause of the constitution illustrated. The action of the president or governor

in calling out troops to quell a riot should be traced, separating official action from the mass of recorded incidents.

Why make this close connection between the study of constitution and current events?

228. The apportionment into legislative districts may be studied in the Blue Book, and from the maps therein given, in connection with the study of the constitutional provisions; and the pupils may at least acquaint themselves with the limits of the various districts, congressional, judicial, senatorial, and so on, of which they are residents.

229. In studying the several powers of congress, it will be found interesting and profitable to refer any bills or laws of which the class have knowledge, as the inter-state commerce law or the silver bill, to the several clauses by which they are authorized.

How may the knowledge called for in the first sentence of the third paragraph best be obtained?

Also find, if possible, some laws passed by congress to carry into effect each power conferred by section eight of Art. I. of the constitution. A careful study of this section will impress the student with the magnitude of the work of the government and its complexity.

An understanding of how the constitution is carried into effect in the actual government of the country is necessary to a clear apprehension of the meaning of the text. "The main hope of the usefulness of this work is in awakening the interest of pupils in the process by which government is administered and in stimulating them to talk freely about the various subjects considered." Study the texts of the constitutions more and the editor's comments less.

HISTORY.

Primary and Middle Forms.

230. Aims:

The leading purpose in the study of History in the primary and middle forms is to give the mind material out of which it can construct pictures of events that have taken place in our country's life. Secondary purposes are (a) to give a more thorough knowledge of local institutions; (b) to establish a habit of judging men's motives, thoughts and feelings through their actions; (c) to give the mind the habit of careful observation; (d) to prepare for future reading and study; (e) to strengthen, stimulate and cultivate the imagination.

231. II. Course of Study:

1. Stories told by teachers to pupils relating to the lives of great men and women:
   (a) in the United States;
   (b) in England.

The following list is suggestive: Columbus, John Smith, Miles Standish, Daniel Boone, Franklin, Samuel Adams, Washington, Jefferson, Mollie Pitcher, Webster, Fulton, Jackson, Garrison, Morse, Lincoln, Grant, King Alfred, William the Conqueror, Queen Isabella, Queen Elizabeth, Cromwell, Gladstone.

232. 2. Stories from the history of the United States and other countries:

Anglo Saxon Invasion, Conquest of England by Normans, Richard I and Crusades, John and Magna Charta, Great Armada, Turks and Capture of Constantinople, The Discovery of America, The Discovery of the Mississippi River, The

Founding of Jamestown, The Landing of the Pilgrims, The Dutch in America, The First Thanksgiving, Cromwell and Puritans, William Penn and Great Treaty, Bill of Rights, 1689, The Story of Marquette and La Salle, The Story of the Five Nations, The Struggle for the Ohio Country, The Stamp Act and the Revolutionary War, The Declaration of Independence, The Story of the Constitution.

233. 3. Stories relating to Industrial Life:

The Invention of the Mariner's Compass; The Invention of Gunpowder; The Invention of Printing; The Making of Books; The Modern Newspaper; The Invention of the Steam Engine; The Invention sf the Steamboat; The Invention of the Locomotive; The Building of Canals; The Building of Railroads; Candle; Whale Oil, Kerosene; Gas; Electric Lighting; Light-houses; Implements for Planting and Harvesting; In vention of the Cotton Gin; The Power Loom; Invention of the Sewing Machine; Methods of Ventilation and Heating; The Electric Telegraph: The Telephone; The Electric Motor; The Weather Bureau.

234. 4. Stories from the History of Wisconsin:

The French in Wisconsin, Joliet, Marquette and La Salle, Pontiac's Conspiracy, Wisconsin a part of Northwest Territory, The Discovery of Lead Mines, Black Hawk War, 1836 Wisconsin Territory, Formation of the State Government, Story of Old Abe, J. M. Rusk.

235. Suggestions.

In making selections of biographies emphasize those of men whose acts have been of consequence and whose influence on American History has been of more good than evil. The course of procedure is to emphasize boyhood life, as that appeals to pupils,—the environment into which he was born, his amusements, his dress, his appearance, his occupation, his school life, his early training for the work he did later, the marked traits of character exhibited, and a brief mention of the great things he did later.

235a. Benjamin Franklin as a type:

Pupils should learn the story as told by the teacher according to the following outline:

1. That Benjamin was the fifteenth child in a family of seventeen children.
2. That his parents were poor, his father being a maker of soap and candles.
3. How Benjamin began to read when he was very young, and in school studied reading, writing, spelling and arithmetic.
4. How Benjamin was taken out of school to assist his father.
5. How he was influenced by the books he read,—the Bible, Plutarch's Lives, DeFoe's Essays on Projects, Dr. Mather's Essays to do Good, Bunyan's Pilgrim's Progress.
6. How he was a leader among the boys and got into many scrapes.
7. How he carried off some building stones to build a wharf, and how he tried to show his father how useful the wharf was, and how his father taught him that what was not honest was not useful.
8. How at thirteen he was apprenticed to his brother James, a printer.
9. How Benjamin wrote articles for the paper. How he saved money in order to buy books.
10. How he improved his style of writing by studying Addison.
11. How he ran away to New York and Philadelphia?
12. How he first appeared in Philadelphia, and his meeting his future wife.
13. How he set up type as a printer and printed Poor Richard's Almanac.

14. How he discovered that lightning is electricity, and invented the lightning rod.
15. How he aided his country in the Revolutionary war, and in making its constitution.

Suggestive questions.—What influence had his early life upon him? Why did his friends like him? Would you have enjoyed reading the books he read? Was it right for him to run away from his brother? How must he have felt when he reached Philadelphia? In what way did he show his love for books?

236. The historical story must be simple, give play to the imagination, afford opportunity for moral and intellectual judgments, form a connected whole and relate itself to important events in United States history.

236a. The story of La Salle as a type. Pupils should learn the story as told or read by the teacher according to following:

1. How the French heard wonderful stories of a great river in to the westward.
2. How Marquette, Joliet and others had partly explored the region.
3. How La Salle determined to find the mouth of the great river. La Salle's character.
4. How the Griffin was built.
5. How they voyaged to St. Ignace.
6. How they prepared for the trip to the Illinois.
7. The journey.
8. How they built Ft. Crevecoeur, and how La Salle was obliged to return to Ft. Frontenac.
9. How, during La Salle's absence, the Illinois Indians were attacked by the Iroquois, and how Tonty, La Salle's lieutenant, brought about a treaty.
10. How La Salle's followers deserted Tonty, taking tools, ammunition and supplies.
11. How La Salle returned to the Illinois country with a large company.

12. How La Salle and Tonty were reunited.

13. How they discovered the mouth of the Mississippi river and took possession of the area it drained in the name of the King of France.

14. How La Salle returned to France and fitted out an expedition to explore the region, and make settlements.

15. How they missed the mouth of the river, and wandered thru Texas in search of it, and how they suffered.

16. How La Salle was assassinated by one of his followers.

Suggestive questions.—What kind of a man was La Salle? What were the difficulties in building the Griffin? Picture the landing at St. Ignace? Why was La Salle gorgeously dressed? What would he take on a voyage to the Illinois country? Why did his followers desert him? What difficulties did he encounter on his return to Ft. Frontenac? Picture his taking possession of the Mississippi region. Why should they miss the mouth of the Mississippi river? What was the motive of the assassin?

237. An elementary text may be used by the pupils in the last year of the Middle Form. The teacher should make a judicious selection of the subject matter, and have the stories center around an ideal historic person or about an event in history. The generalizations of the text will be made more concrete by the study of the diagrams, pictures and statistics of the text, and by large use of the township library books.

There is often no separate class for the study of history in these forms, making it necessary for the work to be presented in the language class, as the material presented readily adapts itself to this work.

SUGGESTIONS TO TEACHERS.

238. In this work the pupil does not in general use a textbook, but some of the matter found in the reader can be used, and some of the books named in the list recommended for public school libraries will be found especially helpful.

239. This is the story period of the child's life. While imagination is the strong faculty, children at this age can really

make judgments and they should be encouraged to do so. The stories may be read, or better, told by the teacher and written by the class; but if reading matter of this kind suitable for children is at hand, the pupils should be encouraged to read for themselves; but the daily conversations about what is read should not be omitted.* The work is preparatory; the object is not to impart a systematically arranged body of knowledge, but to cultivate in the minds of the children a desire and disposition to learn more of what was thought and done by those who lived before us.

240. With the eagerness that youth has to idealize, adore, detest, and imitate, it is the right of every pupil at this impressionable age to come under the influence of the lives of the noble men and women who have made America.

Upper Form.

Aim:

The leading purpose in the Upper Form is to continue the story side of history—the representative phase, in the first two years of the form, and develop the interpretative powers in the last year of the form. In this form the historical judgment comes into life and is given practice. Here the pupil begins to weigh the motives of men, and compare actions. He here develops a rational basis for his patriotism. He is challenged to pass judgment on the actors in the passing drama of events.

COURSE OF STUDY—TEXT-BOOK.

241. I. Period of Discovery and Exploration.

1. Conditions in Europe prior to discovery of America.
   - a. Mariner's compass.
   - b. Invention of printing.
   - c. Revival of learning.

* What is the advantage of telling a story instead of reading it? What are the essentials of good story telling? Show the importance of the object mentioned in the last sentence. The selections should be carefully made.

d. Trade between Asia and Europe.

e. Capture of Constantinople by Turks in 1453.

2. Study of leading discoverers and explorers:

Columbus	The Cabots
Vespucius	Balboa
Magellan	Verrazano
Cartier	Ribault
Drake	Raleigh
Hudson.	

3. What a nation had to do to make good its claim.

4. The physical character of North America.

5. The Indians:—Number, location, character, organization, and government.

242. II. Settlements.

1. London and Plymouth companies.

2. First settlements by Spanish, French, English, and Dutch.

3. European conditions favorable to colonization. a. Changed economic conditions. b. Enlarging natural power. c. Desire to convert Indians. d. Religious and political persecutions.

243. III. Colonies.

1. Study of the four leading colonies, Virginia, Massachusetts, New York, and Pennsylvania, according to following outline, the others in less detail:—

a. Motive for colonization and the right to colonize.

b. Geographical conditions.

c. First settlement and character of first settlers.

d. Plan of government.

e. Growth of colony and character of later settlers.
f. Changes in plan of government; opportunity for self government.
g. Trouble with Indians and with governors.
h. Religious troubles.
i. Industrial development and social conditions.
j. Education.

Important topics to be treated in connection with history of the colonies:

1. First Representative Assembly.
2. Introduction of Slavery.
3. Mayflower Compact.
4. Town Meetings.
5. Roger Williams.
6. New England Confederation.
7. Patroon System in New Netherlands.
8. Conquest of New Netherlands by English.
9. Governor Andros' System of Government.
10. Bacon's Rebellion.
11. Public Education in New England.
12. Founding of Harvard.

244. The pupil thru the study of the colonies should be led to see two distinct types of development—the northern type represented by Massachusetts, the southern by Virginia. The conditions of a soil not easily worked, rigorous climate, small rivers with numerous waterfalls, making necessary the small farms on which nearly all their food was produced, emigration in church congregations, public schools and town meetings developed and strengthened the idea of democracy, or individuality in Massachusetts. While in Virginia the fertile soil and genial climate made possible the raising of large crops of rice, tobacco, and later, cotton,—which could be cultivated by unskilled labor, developing the institutions of social inequality and slavery. The emigrants were individuals, and sought

to secure large plantations on the navigable rivers, making few towns, developing the ideas of the country as the unit of government, private schools, and aristocratic notions of government.

244a. 2. Relations of the English Colonies, as a whole, to the mother country. Legislative and commercial restrictions; the navigation laws.

Forms of Colonial Government.

244b. 3. The French in America.

a. The exploration and occupation of the St. Lawrence and Mississippi valleys. The work of Champlain, Marquette, Joliet, and La Salle.

b. The later occupation of the Ohio valley, 1754–8.

c. The purpose of France in colonizing America as contrasted with the English.

d. French colonists in 1750. Their number, occupations, religion, relation with the Indians and government.

244c. 4. Intercolonial Wars.

1. Brief study of the first three wars, causes and results.

2. French and Indian War.

a. Causes,—remote and immediate.

b. The relative strength of French and English in America.

c. The five objective points.

d. The campaigns.

e. The work of William Pitt.

f. Capture of Quebec.

g. Wolf and Montcalm.

h. The work of the American Colonists in the war.

i. Treaty of Paris.

j. Results of war to France, England, and Colonies.

244d. 5. Pontiac's Conspiracy.

244e. 6. Colonial Life.

a. The people, their number and nationality.
b. Social differences.
c. Home life and customs.
d. Means of education.
e. Religious beliefs.
f. Industries and travel.

244f. 7. Forces tending to keep colonies separate.

a. Differences in social and industrial life.
b. Poor means of transportation.
c. Colonial pride.
d. Lack of intercourse between colonies.
e. England's commercial policy.
f. Development of self reliance in America.
g. Quarrels with colonial governors.

244g. 8. Forces tending to unite colonies.

a. Danger from French and Indians.
b. Sovereignty of England recognized by colonies.
c. Colonial congresses of 1643, 1690, 1754.
d. The French and Indian War.
e. Navigation laws.

244h. 9. Parliamentary acts affecting colonies.

a. Efforts to change colonial charters.
b. The Navigation Acts and Acts of Trade.

245. IV. The Revolutionary War.

Causes:

1. Question as to who should pay war debt incurred in French and Indian war English and Colonial ideas contested.
2. New schemes of Colonial control by England.
   a. Changes in boundaries.
   b. Remodeling of charters.

c. Writs of assistance, 1761.
d. New Navigation Act, 1763.
e. Stamp Act.
1. New method of taxation.
2. Provisions.
3. Remonstrances of Colonies.

3. Stamp Act Congress, 1765.
a. Why called?
b. Colonies represented.
c. Work done. What principles were formulated.
d. Results—Stamp Act repealed, 1766. Effect in England and America.
4. Efforts of Parliament to raise taxes by duties on imported goods, 1767.
5. Resistance to these taxes.
6. The Boston Massacre.
7. Committees of Correspondence.
8. The Boston Tea Party.
9. The Intolerable or Coercive Acts of 1774.
10. The First Continental Congress, 1774. Compare its purposes, work and results with Stamp Act Congress.
11. Lexington and Concord.
12. Causes of Revolution summarized. Justify the American Revolution.
13. The War.
1. Government by the Second Continental Congress. What powers did it exercise, and what right did it have to exercise them?
2. What change in colonial governments was necessary?
3. Raising an army and appointment of Washington as commander-in-chief.
4. Bunker Hill, 1775.

5. Movement toward Independence.
   a. Original purpose of the struggle was to secure rights as Englishmen.
   b. Failure to secure these rights led colonists to securing their rights as men.
   c. The Declaration of Independence.
      1. Resolution introduced by Richard Henry Lee.
      2. Committee appointed to draft.
      3. Jefferson, the author.
      4. Statement of rights.
      5. Statement of grievances.
      6. Statement of efforts to remedy grievances.
      7. Declaration of Independence.
      8. Effects.
6. Campaign of 1776.
   a. Strategic importance of Hudson river. Washington's movements.
7. Campaign of 1777.
   a. Burgoyne's Invasion.
   b. Howe's expedition to Philadelphia.
   c. Valley Forge and sufferings of army.
8. French Alliance, 1778.
   a. Work of Benjamin Franklin.
9. Campaigns of 1778.
10. Treason of Benedict Arnold.
11. War in the South.
   a. Green's Campaign.
   b. Siege of Yorktown.
12. Finances of the Revolution.
13. The navy.

14. Foreigners in Army.
15. Treaty of Peace, 1783.
    a. Nations interested.
    b. Terms of Treaty.
    c. Give original boundaries of the United States.
16. The special work of Washington, Morris, Franklin, John Adams.

246. V. Formation of the new government.
1. The work of the second Continental Congress.
2. The Articles of Confederation.
    a. When and why formed?
    b. How ratified?
    c. Why did Maryland delay ratification?
    d. Main provisions.
    e. Why were they defective?
3. Work accomplished by Confederation.
    Treaty of 1783.
    Ordinance 1787.
4. The Constitution.
    a. What led to the calling of the Annapolis convention of 1786?
    b. Of Philadelphia convention, 1787?
    c. Did Convention do as it was instructed?
    d. Leaders in the convention?
    e. Main provisions.
    f. How ratified?
    g. Arguments for and against ratification.
    h. Influence of Hamilton and Madison.
5. The Ordinance of 1787.
6. The critical period, 1783 to 1789.

247. VI. The Constitutional period.
1. The election and inauguration of Washington.
2. The first congress.

3. The first cabinet.
4. Hamilton's Financial policy.
   a. Financial condition at time of Washington's inauguration.
   b. The tariff.
   c. Excise laws and the Whiskey Rebellion.
   d. The assumption of state debts.
   e. The funding of the debt.
   f. The first United States bank. Purpose and constitutionality.
5. Political parties.
   Origin, leaders and principles of Federalists and Republican parties.
6. The Alien and Sedition Laws.
7. The Virginia and Kentucky Resolutions.
8. Election of 1800.
9. The Louisiana Purchase.
   a. Conditions leading to its acquisition.
   b. The importance of the Mississippi River.
   c. Area and resources of region.
   d. Constitutionality.
10. Struggle for Neutrality.
   a. War between France and England, 1793. The Neutrality Proclamation.
   b. Our grievances against England. The Jay Treaty.
   c. Our grievances against France, France aided us in Revolution. Should we assist France now? Genet. Demands of the Directory. The x, y, z affair. Naval War. Treaty 1800.
   d. Impressment of our seamen and seizures of our ships.
   e. Jefferson's retaliatory measures. Non-importation. The Embargo. Non-intercourse.

f. War of 1812.
   1. Causes.
   2. Relative strength of English and Americans.
   3. Campaigns. Leaders.
   4. Our successes on sea.
   5. Battle of New Orleans.
   6. Treaty and results.

g. The Hartford Convention.
   Compare its proceedings with Virginia and Kentucky Resolutions.

11. The new policy of the Republican party as seen in Tariff act of 1816. Internal Improvements and second United States Bank.
12. The acquisition of Florida.
13. The Monroe Doctrine.
    a. Occasion.
    b. Principles.
    c. Is it now operative.
14. The elections of 1824 and 1828. Compare election of 1800.
15. Jackson and the Spoils system.
    a. Character of Jackson.
    b. His relation to friends and enemies.
    c. How the Spoils system is used to further a party's interests.
    d. How Jackson introduced it into National politics and how it affected the public service.
    e. Civil Service Reform.
16. Tariff Legislation and Nullification in South Carolina.
    a. Tariff acts of 1816, 1824, 1828.
    b. How they affected the South.
    c. Hayne's attack on the Constitution and Webster's defence.

d. Jackson's attitude.
e. Calhoun's theory.
f. The act of nullification.
f. Clay's compromise. Tariff, 1833.
h. Which side won?

17. The second United States Bank.
    a. Purposes and how served.
    b. Jackson's attack upon it.
    c. His veto in 1832.
    d. Removal of deposits.
    e. Specie circular and distribution of surplus among states.
    f. Panic of 1837.
    g. The Sub-Treasury scheme.
18. Election of 1840. Whigs in power.
    a. Their principles.
    b. The Webster–Ashburton Treaty.
    c. The annexation of Texas.
19. The Mexican War.
    a. Causes.
    b. Relative strength of the parties. Leaders.
    c. Campaigns on the Rio Grande, against the city of Mexico, and in California.
    d. Treaty of Guadalupe Hidalgo.
20. Acquisition of Oregon.
21. The Slavery Question.
    a. Introduction and Growth of Slavery.
    b. Invention of Cotton Gin and its effects.
    c. The Missouri Compromise.
    d. The American Anti-slavery society and William Lloyd Garrison.
    e. The Mexican war, discovery of gold in California, and question of slavery extension.
    f. Clay's Compromise measure of 1850, and the enactment of a new Fugitive Slave Law.

g. Summary of the influence of Webster, Clay, and Calhoun on American History.
h. The Kansas-Nebraska Bill and its relation to the Missouri Compromise.
i. The formation of the Republican party. Its principles.
j. The Dred Scott Decision and how it affected the extension of slavery.
k. The John Brown raid.
l. Uncle Tom's Cabin.
m. The election of 1860. Candidates, Platforms, and result. Effect on South.

22. The Civil War.
a. Causes.
b. The South Carolina Ordinance of Secession, and reasons given in defense of it.
c. South Carolina followed by other states.
d. The establishment of the government of the Confederate states of America. How would the constitution differ from the Federal constitution?
e. Lincoln's Inaugural address.
f. Fort Sumpter and calls for troops.
g. The Trent affair.
h. Leaders North and South.
i. The war itself. Topics centering about
1. the struggle for the Mississippi,
2. the blockade of Southern ports,
3. attempt to capture Richmond.
(Biographies of Lincoln, Grant, Lee, and Stonewall Jackson.)
j. Legislation during the war.
a. The tariff and excise laws.
b. National Banks and Greenbacks.
c. Emancipation Proclamation.

k. The Thirteenth Amendment.

23. Reconstruction.
    a. Its meaning.
    b. Lincoln's plan.
    c. Lincoln's assassination.
    d. Johnson's plan.
    e. The congressional plan.
    f. Fourteenth and Fifteenth Amendments.
    g. Carpet Baggers.
    h. Removal of troops.
    i. South today, industrially and politically.
24. Foreign Relations.
    a. French in Mexico.
    b. The purchase of Alaska.
    c. The Geneva award.
25. Important events since the close of the war.
    a. The Pacific Railroads.
    b. The Panic of 1873.
    c. The election of 1876.
    d. Labor troubles.
    e. Resumption act and legislation concerning silver.
    f. Growth of Civil Service Reform.
    g. Presidential Succession Law.
    h. The Inter-state Commerce Commission.
    i. Tariff Laws.—McKinley, Wilson, and Dingley acts.
    j. The Columbian, St. Louis, and Portland Expositions. Exclusion of Chinese, and Immigration problems.
    k. Venezuela and the Monroe Doctrine.
    l. Trust legislation.
    m. The war with Spain.
        1. Causes.
        2. Campaigns.
        3. Results.

n. The Panama Canal.
o. The Insurance Scandals.
p. Railroad Rate Legislation.

248. Review and Summary.

1. Reasons for establishment of colonies. Relations of colonies to mother country.
2. How English won the Continent.
3. How Americans gained their Independence.
4. The Critical Period and Formation of Government under the Constitution.
5. Struggle for Neutrality.
6. Territorial Growth.
7. Slavery and the Civil War.
8. Reconstruction.
9. Political Parties.
    a. Federal and Republican parties.
    b. Whigs and Democrats,
    c. Republicans and Democrats.
        1. Principles of each.
        2. What each accomplished.
10. Great Inventions and the Industrial Development of the United States.

SUGGESTIONS TO TEACHERS.

249. A knowledge of the main course of events is essential to an adequate conception of the institutions of a country, and the study of history may become the source of the best culture acquired in the schools. The text should neither be memorized nor used merely for reading; but when a portion has been assigned and studied, the pupil may fairly be held for the substance of the lesson. When a period has been studied, the teacher should summarize the important facts, and show their relation to other events as causes or results.

Show the truth of the first statement.

250. Encourage pupils to bring to the school all the books of biography and history which they can get, bearing upon the topics treated, and to exchange with one another. In no other branch of the course of study is "uniformity of text-books" of less consequence. What is vital and true is in all of them. The habit of "looking up" a subject in all available sources is thus acquired, and pupils learn how to use books to get information. Use the books of the school library freely. To know how people lived in former times, and how they conducted themselves in emergencies, is more important than the details of battles and campaigns.

How can you get pupils to use Township library books in studying history? In what way does the truth of the last sentence affect our teaching of history?

251. Interest the children in making a collection of pictures of places of historic interest, of famous buildings and of great men. Watch the papers and magazines for sketches and illustrated articles. If the locality is one of significance, visit the noted places with the class. Create enthusiasm and an abiding interest.

252. Study the geography of the country as it affects the growth and development of the nation. Locate places of historic importance. It will seldom happen that these places will be studied at the same time in the geography and in the history classes; one of these studies, therefore, will afford opportunity to review the other.

253. Children are naturally partisans. In their estimation, one side is always and altogether right, the other wholly wrong. The study of the history of his own country by a person of immature years, may cause this natural tendency to develop into an intellectual habit. Guard against this result, especially if the text in use is written in a glowing style. Cultivate in your pupils a spirit of judicial fairness. Disinterestedness is one of the cardinal intellectual virtues, and this study offers exceptional opportunities to cultivate it.

How can this spirit of "judicial fairness" be inculcated?

ELEMENTS OF AGRICULTURE.

INTRODUCTION.

Chapter 158 of the laws of 1905 placed Elements of Agriculture among the branches of study to be taught in public schools. It must not be presumed that any special instruction must be given to the children unless by maturity and previous preparation they are prepared to take up regular class work intelligently. It is expected that in the country schools, pupils in the upper form will do regular class work, using some elementary text. There are several such texts already published that will prove satisfactory. In all districts in which it is advisable to organize classes, it is the duty of the school board to meet and formally adopt a suitable book. The teacher may be consulted, but care must be exercised that the book selected may not be too difficult for the school. In graded schools below high schools and in state graded schools the study should be pursued for the last half of the eighth year. The conditions under which the school is working should be taken into consideration and classes organized when in the judgment of the board and the teachers, the most efficient work may be done.

The teacher must not take it for granted from what is said here that nothing is to be done in this subject until the pupil is prepared to pursue it as a regular text book or class study. A glance through these outlines must lead to a far different conclusion. Instruction in what is commonly designated Nature Study may be given to all grades through general exercises, and in connection with Language Exercises, Geography, and possibly Reading and History. Different text books on Nature Study, Agriculture and Elementary Botany should be read and studied by the teacher. In this way only can the teacher become the possessor of a sufficient amount of ready knowledge to enable him to interest his pupils and make the instruction in Elements of Agriculture effective.

AGRICULTURE.

Aims.

1. To instruct the pupil in some of the foundation principles of agriculture.
2. To interest the pupil in farm work and farm life.
3. To enable the pupil to read agricultural literature intelligently.

It is not the purpose to attempt to teach farming out of a book; but it is expected that a study of the reasons and principles underlying agriculture will serve to create an interest in farm life, to prevent a dislike for agricultural pursuits, and to explain the meaning of farm processes. The study will also give general knowledge and culture by teaching some of the principles of the various sciences that relate to farming. The three aims noted above should be kept constantly in mind by the teacher of the subject.

The Soil.

254. Since all products come directly or indirectly from the soil, naturally the work should begin with the soil. Work on this subject should be done in the field, or with the soils collected by the pupils for this purpose in order that the different kinds may be studied and their qualities learned by actual contact. Pupils should be able to recognize and readily name different kinds of soil and state their different qualities.

Teach:

1. Kinds of soil.
2. Qualities and constituents of each kind.

3. Origin of each.
4. Uses of soil: (a) To fix plants, and (b) to supply plant food and moisture.
5. Adaptation of certain soil to certain plants.

Pupils should be able to answer the following questions:

1. What are the principal kinds of soils?
2. What is the origin of each kind of soil?
3. Name the qualities of each.
4. Why is one kind of soil called heavy?
5. Why is one kind of soil called light?
6. What is humus? What are its uses?
7. How may a sandy soil be improved?
8. How may a clay soil be improved?
9. What is meant by texture of the soil?

255. Water and the Soil.

Teach:

(a) The meaning of the terms free, capillary, and hygroscopic, as related to water in the soil. (b) Chemical processes. (c) Plant tissue.

1. By experiments, the three kinds of water free, capillary, hygroscopic, or film.
2. The uses of water in the soil—
   a. To supply the plant with water.
   b. To dissolve plant food.
   c. To carry plant food.
   d. To aid in chemical processes.
   e. To build up plant tissue.
3. The water capacity of the different kinds of soil.
4. The amount of water needed by plants.
5. How to conserve soil moisture—
   a. By draining.
   b. By cultivating.
   c. By adding humus.
6. The importance of water to plant life.
7. The effect of saturation of the surface soil upon plant life

a. Prevents warming in the spring.
b. Hinders working.
c. Causes washing and erosion.
d. Prevents root penetration.
e. Keeps oxygen from entering the soil.

8. Drainage—how accomplished, benefits of drainage, kinds of drainage.

256. Tilling the Soil.

Teach:

1. The definition of tillage. Inter-tillage.
2. The different kinds of tillage:
   a. General.
   b. Inter-tillage.
   c. Deep and shallow.
3. The purpose—
   a. To loosen the soil.
   b. To conserve moisture.
   c. To pulverize the soil.
   d. To dry the soil.
   e. To expose the soil to atmospheric action and weather conditions.
   f. To increase amount of available plant food.
   g. To destroy weeds.
   h. To cover the seed.
4. The time for tillage.
5. The tools and methods.
6. The process of plowing.
7. The time of plowing—spring and fall.
8. The advantages of each.
9. Depth of cultivation.
10. Danger of root pruning.

257. Soil Enrichment.

Teach:

1. Properties and uses of phosphorus, nitrogen, potassium, calcium.
2. The thirteen elements necessary for plant growth.
3. That phosphorus, nitrogen, potassium, and calcium are the only elements that the farmer needs to provide.
4. Where each of these plant foods is found, as in barn yard manure, ashes, plowed-under stubble, roots of stubble, in leguminous plants, commercial fertilizers, etc.
5. That plant food already in the soil may be set free by chemical changes which are aided by tilling the soil or adding humus.
6. Distribution of nitrogen, potassium, and phosphorus in parts of the plant, and the relative loss of these elements by the sale of grains and grasses from the farm.

If a school garden is made, plant corn, or some other crops, and put well rotted manure in every other hill. Note the differences in the growth of the plants. Numerous soil experiments illustrating the effect of soil enrichment should be performed in school by pupils and teachers. A bulletin on soil fertility, and one on the soils of Wisconsin will be issued by the Wisconsin Experiment Station and should be secured by all teachers when ready for distribution.

258. The Plant.

Teach:

1. Definition of cell, root hairs, root, stem, leaves.
2. The parts of the plant.
3. The uses of the different parts.
   a. The stem—to support the plant and convey the sap.
   b. The root—to anchor the plant and convey sap.
   c. The root hairs (single celled)—to gather and absorb plant food and water.
   d. The leaves—to transpire water and absorb carbonic acid gas and serve as a laboratory where plant food is compounded chemically.

e. The flowers—to produce seed, and furnish food for animals and man.

4. How all these different parts are adapted to their uses.
5. Point out relation between texture of soil and plant root system. Have pupils compare the root systems of several plants—grass, corn, etc., growing in different soils and under different conditions.
6. In what kind of soil do they find that the different root systems have their best development?

259. The Leguminous Plants.

Define leguminous, bacteria, ferment, nodules.

Teach:

1. The more important leguminous plants and their characteristics.
2. Have the pupils bring plants to school showing nodules.
3. Note, size, shape, location, etc., of nodules.
4. Explain about the nodules and the bacteria they contain. If possible get some inoculated earth and plant some beans. Note the vigorous growth of the nodules on the roots. Make clear to the pupils that leguminous plants are necessary to fix the nitrogen from the air in the soil.
5. Discuss these bacteria by comparison with others, such as found in yeast, vinegar, ferment, sour milk and cheese ferments.
6. Tell how clover improves soil by gathering nitrogen, and that it takes away phosphorus and potassium from the soil the same as other crops.
7. Show the mechanical effects upon the soil of deep rooted plants. Read Farmers' Bulletin No. 214 on "Beneficial Bacteria for Legumes." This bulletin is to be had free from the United States Department of Agriculture, Washington, D. C.

260. Plant Enemies.

Teach:

1. Definition of beetle, larva, insecticide, fungicide, rusts, smuts, etc., and give the formulae for Bordeaux mixture and other fungicides, also formulae for paris green mixture and two or three other insecticides.
2. The two classes of plant enemies, animal and vegetable.
3. Animal enemies—potato beetles, currant worm, cabbage worm, plant lice, chinch bug, etc.
4. Two classes of animal enemies—leaf chewing, sap sucking. Give methods of application of different insecticides. Send to the Wisconsin Experiment Station for Bulletin No. 112.
5. Vegetable enemies—rusts, blights, smuts, mildews, etc.
6. Teach ways of destroying with Bordeaux, formaldehyde, and other fungicides. Collect cocoons of various insects and keep them over winter in a cool, medium dry place. Watch them develop in the spring.

Collect adult larval forms of these insects and feed the larvæ on the leaves of the plant on which found.

Read the Wisconsin Agricultural Experiment Station Bulletin No. 111, 1905, on "The Prevention of Oat Smut." This bulletin may be procured from the Agricultural Experiment Station, Madison, Wis. Read "Potato Culture," Farmers Bulletin No. 35, U. S. Department of Agriculture, Washington, D. C.

261. Rotation of Crops.

On the subject of rotation of crops,

Teach:

1. Definition of rotation.
2. Reasons for rotation:
   a. Different crops take different amounts of the several plant foods from the soil.

b. Crops have different methods of getting some of their foods; for instance, clover takes its nitrogen from the air; other plants get nitrogen from the soil.
c. Some plants feed deep, some shallow.
d. Different crops require different treatment of the soil.
e. Different crops mature at different times.
f. Different weeds infest different crops.
g. Certain insects may be avoided by raising different crops for a few years.

Have the pupils bring in samples of grain grown under different systems of rotation. Discuss the different plans of rotation followed by the farmers in the neighborhood. The different crops used in the several systems of rotation. The advantages of each system.

262. Selection of Seed.

Teach:

1. The importance of the selection of the best seed.
2. How to choose the seed.
3. The care of the seed during winter.
4. How to test seed.
5. Have the pupils bring in sample ears of seed corn. Compare:
   a. The size and the depth of the kernels.
   b. The number of rows of corn on the ear.
   c. Relation of the size of the cob to amount of corn.
   d. Length of the ear.
   e. The degree to which the tip of the ear is filled.

Have the pupils plant on blotters in the school room, grains of corn, wheat, rye and oats and determine the percentage of vitality of each kind. The blotters must be kept moist. Discuss in this connection the preparation of the ground for different grains and the importance of thorough preparation before planting. Discuss the effects of tilling the soil after planting and before the plant appears above the ground.

263. The Farm Garden.

If possible, every school should have a farm garden. In this the children should be taught to plant and care for whatever is grown in the home garden.

Teach:

1. The best location for the home garden.
1. The proper kind of soil needed.
3. The preparation of the soil.
4. The most desirable things to grow—vegetables, fruits, flowers.
5. The arrangement of crops in order that the early maturing plants may be out of the way of the later ones.
6. The best time to plant the various crops.
7. Best methods of planting, cultivating and caring for small fruits, such as strawberry, raspberry, blackberry, gooseberry, grape, currant, etc.

The pupil should be able to tell how to grow all the common vegetables. Encourage each pupil to plant and care for a garden of his own. If practicable, have the pupils plant and care for some marketable crop which may be sold when grown, and the proceeds of the sale used for securing some needed school equipment.

264. Weeds.

Define: Weed, annual, biennial, perennial.

Teach:

1. The names and habits of the different kinds of weeds.
2. Their manner of growth and propagation. Their nature: (a) annual, (b) biennial, (c) perennial.
3. How each kind may be exterminated.
4. Show how knowledge of habit, length of natural life and plan of reproduction determine the best methods of killing certain weeds.

5. Classify weeds into several groups, as,
   a. Weeds of cultivated fields, as found in corn and potatoes.
   b. Weeds found in pastures.
   c. Weeds found in meadows.
   d. Weeds of the road-side, fence corners and neglected places.
   e. Discuss improved methods of eradicating each class.

Incite the pupils to destroy all the weeds in the school grounds and along the road-sides. Interest them in having their home yards kept neat and clean. Have the pupils discuss the methods used by the farmers of the neighborhood in destroying different kinds of weeds.

Have the pupils bring in and label specimens of the more common weeds. Secure copies of the pamphlet on "Noxious Weeds of Wisconsin" from the Agricultural Experiment Station, Bulletin No. 76, and Circular No. 27, U. S. Department of Agriculture, Washington, D. C.

265. Home and School Garden.

The instruction in agriculture should be so given that a disposition to clean up and beautify the home and school grounds will be created in the children.

1. Have the pupils gather and burn leaves, dead weeds, and rubbish; pile stones, dig up stumps, and level uneven places.
2. If necessary have the ground plowed and leveled.
3. The weeds and grass should be removed, and the large weeds pulled.
4. Prepare part or all of the ground for sowing grass seed.
5. Interest the school board in making all needed repairs on school buildings, fences and grounds.
6. Plant trees in the background and along the driveway, plant shrubs near the building and on the borders of the school grounds.

7. In planting, trees and shrubs must be kept on the borders and where they will hide the outhouses and any other unsightly objects. Clear open spaces must be preserved for play grounds.
8. Vines, such as wild grape, Virginia ivy and wild hop, may be planted along fences.
9. Always choose hardy shrubs. Wild shrubs that grow in the locality are often the best to plant. Confer with the patrons of the district as to what kinds of shrubs grow best in your locality. There are always people who know about such matters, willing to assist with advice, and often with the desired plants. Do not experiment with unknown shrubs and trees.
10. If possible, obtain the services of some experienced person who knows how to set out trees and shrubs. Study the bulletin on tree planting sent out with the Arbor and Bird Day Annual for 1905.

In the spring have a small portion of the school grounds prepared for a school garden. Assign a portion of this plat of ground to each pupil, and instruct him in the best method of preparing the ground, and planting the seed. Have the pupils do *all* the work. The work done in the school garden may be very profitably made the topic for general discussion at morning exercises, and also the basis of composition work.

Send to the Wisconsin Agricultural Experiment Station, Madison, Wis., for Bulletin No. 105; to the U. S. Department of Agriculture, Washington, D. C., for Farmers' Bulletins 134, 185 and 218.

FARM ANIMALS.

266. Care and Feeding.

The farm animal may be looked upon as a machine, which takes its food as raw material and transforms it into other products, such as milk, wool, meat, etc.

Teach:

1. The different kinds and composition of feeds.
2. The amount of food required by the various animals for maintenance for each thousand pounds of weight.
3. What is meant by a nutritive ration? Balanced ration?
4. The meaning and uses of protein, albumen, carbohydrates.
5. How to use the feeding tables.
6. How to make a balanced ration.
7. Find the results obtained from feeding various feeds and combinations of feeds.
8. Have each pupil determine by the tables, the nutritive ratio of the rations fed the animals on his father's farm.

The above suggestions are not intended to be exhaustive, but to suggest some lines along which the teacher and pupil may profitably work. It is expected that as the teacher's knowledge of and familiarity with this subject increases, he will learn from other sources what to do and how to do it.

267. Type Forms.

Knowledge of qualities of farm animals can be gained by cultivating the power of observation.

1. Call the attention of pupils to pictures and written descriptions of the different breeds and types of farm animals.

2. Study carefully the correct type form, and have the pupils compare the animals found on the nearest farms with these pictures and descriptions.
3. The pictures may be clipped from farm bulletins and papers. Mount them on cardboard and keep for further reference.
4. Teach the characteristics, types, and special uses of each breed of animals.
5. In this way a study should be made of the different breeds of cattle, sheep, hogs, horses, and other farm animals.

268. Farm Economics.

1. Encourage the pupils to bring in reports of the amount ot butter and milk produced during the year by the different breeds of cattle on the several farms of the neighborhood.
2. Have the pupils investigate the total amount of money received from the various farm dairy herds in the locality, the cost of keeping the cows, and the total net loss or gain.
3. Discuss the reasons for this loss or gain.
4. Make a table showing the average value per cow of the dairy products in the district.

If sheep raising is practiced in the district, a study may be made of the breeds of sheep and data collected relative to the amount of wool produced by individuals of the different breeds in the district.

1. Age at which sheep are most profitably killed for mutton.
2. Amount of mutton produced by various breeds of sheep, the cost of keeping, etc. Best mutton breeds. Best wool breeds.
3. The effects produced on land by sheep. Why are they considered especially profitable on hilly land? On wild land?

4. Why are certain breeds called mutton sheep? Wool sheep? etc. Why is not one kind a perfect substitute for the other?

The same course may be observed in regard to other farm animals, the object of this work being to awaken the pupils' interest in these animals, create and form a habit of observation that shall lead to definite knowledge regarding the things with which they are in almost daily contact and with which they must deal in active life, even though they may be engaged in some pursuit other than agriculture.

FARM POULTRY.

269. This is a branch of agriculture that will appeal directly to farm boys and girls. Instruction in this subject should serve to impress upon every pupil the necessity of the closest attention to details. No other phase of farm work demands such prompt and exact attention at all times and in every small particular. It is, however, a branch of agricultural industry which the pupil may pursue in a small way and with very little expense, and the fact that it does require the most exact attention to small things makes it unusually valuable in forming habits of business discipline.

Teach:

1. Different classes of chickens—
   a. Breeds included under each class.
   b. The characteristics and habits of each breed.
2. What is meant by moulting?
   a. The age at which chickens of the different breeds reach maturity.
   b. At what time in the year should each breed of chickens be hatched in order that the pullets may become winter layers?

3. The chemical constituents of an egg.
4. What elements must be supplied in the food in order to stimulate egg production?
    a. In what common farm foods may these elements be fonnd?
    b. Prepare a satisfactory winter ration for laying hens.
5. At what age are chickens most profitable—
    a. As layers?
    b. For food?
6. The care of the flock during the different seasons of the year.
7. The proper care of the young chickens.
8. The more common diseases of poultry, and how to prevent and cure them.
9. The several different plans and styles of poultry houses.
    a. Advantages of each.
    b. Floor space required for each chicken.
    c. Necessity of ventilation, cleanliness and light.
    d. Methods of ventilation, arrangement of windows, etc.
10. The principles underlying artificial incubation.

The same methods should be pursued in the study of the care of turkeys, ducks, and geese. Where practical, urge the pupils to induce their parents to allow them to have the care of the poultry on the farm.

PHYSIOLOGY AND HYGIENE.

COURSE OF STUDY.

270. The object of the study of physiology in the public schools of this state, is to shape the habits of the children. Since new habits are formed each year, the child will miss the restraining influence of that instruction needed to help him to resist the temptations peculiar to that particular period of his development if the study is omitted or neglected for any one year. The study should run through the entire course instead of being massed in the advanced years, where it might come after the formation of wrong habits, and many pupils have quit the school.

While a practical knowledge of the fundamental laws of health is the object of the study, such facts of physiology must also be taught as are necessary in order to make plain the reason for obeying hygienic laws.

Primary Form.

271. It is not expected that in this form the teacher will hold daily recitations in this subject, but that at least one period a week throughout the entire form will be devoted to this work. The teacher should study a book adapted to this elementary form of instruction and aim to present the matter in a manner suited to the age and understanding of the pupil. The instruction in this subject should be oral, and of a nature readily comprehended by the children. Pupils should be lead to make such observations as will help to fix in their minds the truths taught. The topics should be presented in the order

in which they appear in the manual and may be made the subject matter of opening exercises, or used for the closing work on Friday afternoons.

272. 1. The body as a whole: Trunk, limbs, and head. Relation of a correct position to a well formed body; to good health.

(a) The bones: Bones of arms, fingers, head. Relation of framework to shape of body. Care of bones. Why sit and stand erect. Difference between framework of the young and old. Effects of the use of tobacco and alcoholic drinks on growth of bone and body.

(b) The head: Parts of the head and face. Care necessary. Desirability of attractive forms and features and of good personal appearance.

(c) The arms and hands: Parts of the arm. Parts of the hand. Uses and care of hand.

(d) Legs and feet: Uses of the leg. Parts and proper care of the feet.

2. Position: Sitting and standing erect. Chest position. Drill in filing, marching and orderly self controlled movements.

3. Playing: Need of exercise. Play of young animals. Play necessary for children. Strength gained by play. Teach games and train to be fair and avoid anger, selfishness and rudeness.

4. Sleeping: Sleep needed by animals, children and everybody. Best time for sleep. Repair most rapid in sleep.

5. Wear and Repair of body. Need of food for growth, warmth, strength. Hunger. What children should and should not eat. Effect of eating too much. Rules for eating. Why not between meals? What constitutes a good breakfast, dinner. Table manners. Proper use of knives, forks, spoons, napkins, etc.

6. Cleanliness: Soap, water and individual towels. Care of hair, teeth, nails, clothing, desk. Use of door-mat, waste-basket. Need of bathing often, of clean hands and face, of clean clothing. Uncleanliness of tobacco using. The skin and cleanliness: The skin a garment; why it does not wear out. The pores of the skin. Care of the skin.
7. Pure air and breathing. How air gets to the lungs. Why air of rooms needs to be changed often. Importance of fresh air in the bedroom during the night. Boys and girls should be taught how to air their bedrooms in the morning.
8. The senses:
   (a) The eye: Visible parts of the eye and their use. Sight; guard against close work and poor light. Care of the eyes. Danger to the eyes from use of tobacco and strong drinks.
   (b) The ear: Hearing. Training in quick and accurate hearing: How injured. What we learn through hearing. Distinguish between high and low, soft and loud, agreeable and disagreeable sounds. Why cultivate pleasant tones. Danger in screaming, in bad air, and tobacco smoke.
   (c) The nose: What facts are learned by smell alone. Other uses of the nose. Use of handkerchiefs. Colds from breathing impure air.
   (d) The touch: Where the sense of touch is located. Distinguish between objects that are hard, soft, rough, smooth, etc.
   (e) The taste: Different flavors of foods. Things that blunt the sense of taste.
9. The heart: Its motion. The pulse. Veins that can be seen.
10. The blood: The food carrier. Blue and red blood.
11. The muscles: How the body moves. Location of important muscles. Difference between muscle and

fat. Exercise and proper food strengthen, alcoholic drinks weaken muscle.

12. The brain and nerves: Use. Protection. Their need of food. Alcoholic drinks and tobacco make nerves act more slowly and less accurately.
13. Drinking: Water and milk good drinks. Individual drinking cups. Tea and coffee not good for children. The juice of ripe fruits helpful in the fruit, but not after being pressed and allowed to stand. The grape and its use. Proper use of grapes. Unwise use of beer, wine and cider.
14. Grain: Starch in grain. How changed to sugar. Sugar in sprouted grain soaked out and changed into alcohol, in beer making. Difference between grain and alcohol. Beer made from grain.
15. Harmful drinks: How soon alcohol may be formed in cider. Danger that cider, beer and wine drinking may create a desire for stronger drinks.
16. Cigarettes: Hinder growth and healthy physical and mental development. Contain nicotine and sometimes other harmful poisons. The law forbids the sale of cigarettes in Wisconsin.

Middle Form.

273. It is expected in this form that pupils will be provided with a suitable text book, and the course of instruction will extend throughout the entire form. It will not be necessary for the teacher to conduct daily recitations in this subject, but at least one lesson a week should be given in the text book. The work of the text should be supplemented by observation and oral instruction. The outline prepared for this Form should be followed by the teacher in the assignment of the topics for study by pupils, and for oral presentation.

274. The Framework: A turtle compared with the jelly fish. Disadvantages of an outside framework for man. Frame

work of animals as compared with that of man. Why many pieces in human skeleton. Different shapes of bones. Animal and mineral matter in bones. The jelly-like part. Marrow. Blood in bones. Source of hardness of bone. Soft bones of children. Location of principal large bones. Joints, hinge, ball and socket, and immovable joints. How held together. Supports and protection furnished by principal bones, as ribs, skull, etc. Effect of tight clothing, of ill-fitting shoes.

275. Foods: Nature's foods for the young. Materials which furnish these. Proper choice of food. Effect of too much meat. Milk and eggs the most complete foods. Need of cereal foods. The part of meat which makes muscle. Value of cheap cuts. of meat, of vegetables and fruit. Sources of common foods. Best ways of preparing food. Why food should be attractively served. Danger from impure ice, from drinking much very cold water.

276 Body heat: Source of body heat. Oxygen and burning. Fuel foods. Regulation of heat by skin. Relation of clothing to body heat. Effect of exercise on warmth. Effects of alcohol.

277. Digestion: Importance of good teeth, of chewing food, Waste of saliva in chewing gum and in chewing or smoking tobacco. The two sets of teeth. The cutting and grinding teeth. Bone-making food necessary for preserving teeth. Tooth picks and tooth brushes. Dentist's care. Forming tastes for healthful foods in childhood. The epiglottis. The soft palate. The esophagus. The stomach. Gastric juice. Work and rest for stomach. Irritating effect of alcohol. Changes of food in stomach. The intestines and intestinal juices. The villi of the intestines; their blood vessels and other tubes. The lacteals and fatty food. Danger of giving alcoholic drinks to infants and young children, Passage of other food into blood vessels. Sugar stored in the liver. How food is used by the muscles and other organs.

278. Circulation: The Heart: Right and left sides of heart; auricles and ventricles. Valves. Number of beats per minute. Strengthening the heart by exercise. Effect on the heart of sudden fright; of alcoholic drinks and tobacco. Veins and arteries. How the blood feeds the body. Need of good food to make good blood. The blood as an air carrier.

279. Respiration: Air as a purifier. The air passages. Air sacs of the lungs. Full, deep breathing. The advantage of well-developed lungs. How air is polluted. Airing living-rooms. Need of air in the blood. Where the blood comes in contact with the air. Importance of breathing through the nose. "Adam's apple." Movement in swallowing. Branching of windpipe. Elasticity of lungs. Change of air in air-sacs; Why air once breathed is unfit to be re-breathed. Development of the lungs by deep breathing, by "forced respiration," by exercise. Simple methods of ventilation in the home and school-room. Why and how dust should be avoided.

280. Muscles: Muscles composed of bundles of fibers. Fastening of muscles to bones. How they move bones. Sizes and shapes. Cords. Tendons. Tendency of beer to cause the storing of fat instead of the formation of muscle. Relation of muscle and fat to strength. Why business men choose boys who do not use tobacco. Power of muscles to contract and relax. Use and proper food necessary to size and strength of muscles. Proper time for exercise. Beer, wine, and cider tend to lessen precision of muscles.

281. The Skin: Work of the skin. Oil and sweat glands. Danger of cooling off too quickly. Bathing as a preventive of taking cold. Skin as protection. Varying thickness of outer layer. Cause of callousness and corns. Skin as an aid in removal of waste. Sweat glands. Deposits left on skin in perspiration; consequent need of bathing. Use of oil in skin. Alcohol enlarges capillaries of skin. Formation of hair and nails; use and care. Why the hair needs frequent washing. Proper time for bathing. Importance of cleanliness

of underclothing, of bedding. Need of waste matter being promptly expelled.

281a. The kidneys: shape, location, blood supply; their work; how overworked; how kept in good order.

282. The Brain and Nerves: Work of brain. How made strong and how rested. Spinal cord. Connection with legs, arms, etc. Alcohol benumbs brain and nerves. The brain as a receiver and director of messages. Cerebellum and motion. Cerebrum, the organ of thought. Relation of attention and clear thinking to brain power. Importance of rest and sleep. Alcohol and tobacco weaken power to think, to recognize warnings of the senses, and to take proper precautions against danger. Alcohol the cause of many accidents on land and sea.

283. Senses: Show that sense organs do not see, hear taste, touch or smell, but are only avenues to or instruments of the mind. Continue training of senses.

284. Sight: Pleasure derived from it. The eye: shape; bony socket and cushion of fat; muscles; tear-glands; lashes; lids; iris. Danger in reading in too strong a light or by twilight, when lying down, when the eyes smart. Avoidance of small type and poor paper. Uncleanliness and "sore eyes," touching eyes with soiled fingers. Danger from public wash basins and public towels.

285. Hearing: Outer parts of ears. Ear wax and care in its removal. Danger from blows. Protection from draughts and strong wind, especially when riding. Effects from working in constant noise. Avoidance of unnecessary noise and disagreeable tones in speaking.

286. Smell: Where the sense is located. Nerves of smell. Dependence of animals upon smell. Connection with taste. How affected by colds. Use in detection of foul air, gas, etc.

287. Taste: Use. Papillæ of tongue. Nerves of taste. By what affected. How dulled.

288. Touch: Nerves in skin. Where touch is most delicate. Why delicacy of touch is desirable.

289. The blood: Appearance of blood under microscope. Its three parts. Work of serum, red corpuscles, white corpuscles. Clotting. Good blood necessary for strength of body and power of mind. Blood vessels. Capillaries. Distribution of food, and removal of waste. Meaning of circulation. Relation of good food, pure air, and exercise to good blood.

290. Alcoholic drinks, tobacco and other narcotics: The cause of decay. Work of molds and alcoholic ferments. Fermentation changes character of substances. Sugar a food; alcohol a member of a group of poisonous substances. Definition of a poison. Use of yeast in breadmaking; why there is no alcohol in bread. Nature of a narcotic. The nicotine in tobacco a narcotic; the shelfishness and expense of the tobacco habit. Danger that smoking may lead to drinking. Why children should not be given soothing syrups. Proper choice of drinks. Water, why needed. How fruit juices are made unhealthful. Special danger in cider and wine. Self-control in eating and drinking. Power of alcohol to weaken self-control.

291. Exercise: Good forms of in-door and out-door exercise; why the latter is preferable. Necessity of exercise; how secured; in games, work; proper time; adaptation to individuals and to age; proper dress.

Upper Form.

292. A text book adapted to the Form in the hands of the pupils. Experiments to be performed before the class by the teacher.

293. Plant Physiology: Sprouting and growth of plants; necessary conditions. Food stored in seed. Plant respiration, oxidation and work. Parts, structure, organs. The seed. Plant digestion. Plant and human physiology compared; as

gans of protection and digestion. Cells. Tissues. Organs. Systems. Health of the cells.

294. General Structure and Processes of the Body: Varieties of tissues. Properties of cells. Chemical composition. Protoplasm. Maintenance of life. Building material. Energy: sources, storage, liberation, and use. Bodily organs and functions. Health and disease.

Osseous system; general arrangement. Upright position of human skeleton. Composition of bone. Structure of cartilage. Dislocation. Fracture. Gout. Vertebral column the axis of the body. Relative position of axis in man and animals. Correspondence of leg and arm bones. Purpose of elastic cartilage in spine. The shaft, cancellous tissue, red and yellow marrow of bones.

295. Nutrition: What it includes; composition, digestion, and assimilation of foods. Definition of a food. Classes of foods: nitrogenous or albuminous, starchy, fat, and mineral; what each supplies to the body; sources of and experimental tests for each. Food material in cereals, vegetables, fruits, meat, milk and eggs. Unwholesome foods: indigestible food; unripe; over-ripe, or decayed fruit, stale vegetables and meats; adulterated foods; injurious drinks. Principles of selection of food. Constituents of animal food. Need of organic foods. Quantity and proportion of food substances in diet. Object of digestion. Mucous membrane of alimentary tract. Secretion. The action of villi in absorption. Structure of liver. Uses of different foods. Special foods or compounds needed. Essentials in a diet list. Condiments. Beverages.

296. The Digestive System: The alimentary canal; parts, structure, and processes; glands, and digestive properties of their secretions. Hygiene of digestion; amount of food; as affected by age, activity, occupation, climate, etc. Preparation of food: reasons for cooking. Importance of regularity and moderation in eating; of careful mastication.

297. Absorption: Of fat, albumen, sugar. Storing of sugar, of fat. Use made of proteid matter. Definition of digestion, absorption, assimilation, oxidation.

298. Excretion: How waste materials are formed in the body. Organs that remove waste: skin, lungs, kidneys, liver, and large intestine. Importance, size and location of the kidneys, connection with circulation, separation of waste. How the liver removes waste. Hygiene of liver and kidneys. How affected by alcoholic drinks. The chemical compounds of body wastes; how separated from the blood. Composition of perspiration; amount eliminated daily. Necessity of accelerating removal of waste by exercise, baths drinking plenty of water, avoiding substances which irritate the kidneys. Regularity of bowels.

299. Circulation: Valves of nerve supply of heart; differences in structure of right and left sides. Valves in veins. Inferior and superior vena cava. Gains and losses of the blood in circulation. Location of arteries. Wounds. Methods of checking bleeding. The lymph: its circulation; how affected by exercise. Lymph glands. Thoracic duct. Effect of exercise on tissue exchange. Massage. Change in heart structure caused by beer and other alcoholic drinks. "Tobacco heart." Muscular tissue of heart; its irritability. Systole and diastole. Contractions of auricles and ventricles. Amount of work done by heart. Lymphatic notes. Vasomotor nerves. Danger of strain and overwork. Taking cold. Hemorrhage. Fainting. Anaemia. Germicidal power of blood. Alcohol lessens contractile power of heart, lessens ability to endure strain, weakens blood vessels. Use of tobacco a hindrance to athletic success.

300. Respiration: Breathing organs of land and water animals. Nasal passages, pharynx, local cords, trachea, bronchi, cilia. Pulmonary circulation. Respiratory movements of diaphragm and chest walls. Lung capacity; complemental, reserve,

tidal, and residual air. Chest and abdominal breathing. Modifications of breathing; coughing, yawning, sneezing, etc. Voice: how produced; training. Results of insufficient oxidation. Experimental determination of impurities of air. Causes contributing to disease of air passages and lungs; over-crowded, poorly ventilated houses, damp or sunless rooms, insufficient food and clothing, lack of outdoor exercise. Effect of alcoholic drinks in depressing vitality and causing proneness to lung diseases. Membranes and cells of lungs. Mechanism of inspiration. Affinity of hemoglobin for oxygen. Volume of air expired. Damage done by dust, alcohol, carbon dioxide. Asphyxia, drowning. Artificial respiration.

301. Muscles: Voluntary. and involuntary. Work of the muscles in generating heat. The stronger the muscles, the more work and heat. Muscular system sensitive to changes in food. Alcohol decreases muscular power and consequent working ability. How this has been proved by experience and laboratory experiments. Principle of levers in bodily motion. Muscular action in walking, running and maintaining the upright posture. Structure of voluntary and involuntary muscle. Training and development.

302. Sensation: General sensation. Tactile and temperature senses. Sense of position. Special senses: Cornea, crystalline lens, retina, aqueous and vitreous humors of the eye; methods of resting eyes during close work; ear drum, bones and canals. Relation of hearing to speech; hearing affected by growth in the throat. Effects of alcohol and tobacco in inspiring delicacy and accuracy in sense-perceptions.

303. The nervous system: Harmonious actions of organs. Brain the central controlling organ. Co-operation of nerves, spinal cord and ganglia. The sympathetic nervous system. Reflex action. Habit. Narcotics: alcoholic drinks, tobacco, opium; effects upon the nervous system; dangers of moderate use. Structure of nerves: axis cylinder, central and outer

sheath. Ganglion cells. White and gray matter, fissures and layers of the spinal cord and brain. Spinal nerves. Membranes and fluids of brain. Brain functions. Building and wasting of brain cells. Importance of an all-round development. Harm done by alcohol. The alcoholic habit.

304. Beverages: *Water:* forms found in nature; necessity for water in the body; kinds: spring, well, rain, river, salt, mineral, hard, soft, impure; principal sources of supply: rain, wells, springs, rivers, lakes: importance of pure water and ice supplies. *Tea and coffee:* sources, properties. *Nourishing drinks:* milk, chocolate, cocoa, and cereal drinks; when most useful. *Non-alcoholic refreshing drinks:* lemonade, orangeade, unfermented fruit juices, fruit syrups. *Alcoholic drinks:* why not classed as foods; effects upon digestion; comparison of fermented and distilled liquors.

305. Domestic Economy: Apportionment of necessary expenses on an income of $500 to $1,800 per year. Food for a family of five on $10 per month. Dietaries on a basis of $25 and $30 per month for food. Typical menus for each meal. Problems.

WRITING.

PURPOSE OF WORK.

306. The purpose of the work in writing is essentially the same in all schools and in all forms, namely, to acquire the ability to write LEGIBLY, NEATLY and *rapidly*.

To attain the desired results there must be a simultaneous development of correct ideas of form, and of muscular skill that the hand may execute what the mind intends.

Show that the three qualities enumerated are given in the right order and that they are essential in this art.

307. For two reasons the work is not outlined by forms.

1. All pupils, young or old, who have not acquired the power this outline aims to secure should be given the same course.

2. Above the Primary grade, every pupil of average intelligence can do in one term of three months, all that the outline indicates except the long continued practice absolutely essential.

COURSE OF STUDY.

308. With the arm resting upon the muscle between the elbow and the wrist, with the fingers extended, and the palm of the hand downward near the desk, but with no part of the hand or wrist in contact with the desk, move the hand back and forth, obliquely and in curves, until the arm *rolls* easily upon the muscle. Do not *slide* the arm on the desk.

309. With the movement described in 294, exercise upon the oval, the usual size of the capital O, the hand passing through the circumference at the rate of 150 to 200 times a minute.

This should be practiced from right to left and from left to right, until perfect freedom of movement is secured, the hand moving around many times in the same circuit.

310. With the same movement practice upon the capital O, made with three quick strokes (down, up, down) at the rate of 60 to 80 a minute.

311. At the same rate, keeping up the fore-arm movement and avoiding all use of the fingers except to hold the pen, make the simplest form of the capital P. Afterward capital B, and then the easy capitals.

312. Practice upon the small letter n, in the same manner as directed in case of the capitals. Follow with other small letters, the easier ones first, as m, i, u, combining them as soon as possible into simple words.

313. Follow the small letters with l, then h, j, g, and the other extended letters.

314. With proper movement and high speed, practice special exercises a few minutes daily until perfect freedom of movement is secured and correct form attained.

315. Practice upon easy words beginning with capitals, then with verses of poetry, mottoes, etc., care being taken to so grade the work that not many difficulties will be presented in any one lesson.

SUGGESTIONS TO TEACHERS.

316. The four things to be considered in every exercise in writing are *position, form, movement, speed.* A good position enables the pupil to use the muscles easily. To secure this he should sit erect, near the desk, but without leaning upon it, face it directly when convenient, otherwise turn the right side slightly towards it, rest the fore-arm upon it, and set the feet squarely upon the floor.

Why give attention to position? Form? Movement? Speed?

317. The idea of good form is developed by inspection of good writing done by the teacher and from examination of charts and engraved letters. Some analyses of letters will prove helpful, but a careful inspection of letters in their entirety will be more valuable. It should be remembered that one's ideas of form are usually far in advance of his *ability to execute.*

What is the value of copy books?

318. A good *movement* is of the utmost importance, as one acquires through it the ability to write rapidly for hours with little fatigue. The best movement for all school purposes is fully explained in 293. The pen should be held lightly between the thumb and first and second fingers. The finger movement makes the writing cramped. The whole arm movement may be used only in exercise for practice to secure freedom and skill in execution.

319. *Speed* is exceedingly desirable. The writer who can turn off a large amount of correspondence in a given time is the one whose services are in demand. Many persons look upon writing as a drudgery, because emphasis has been laid upon form at the expense of legibility and rapidity. It is a misdirected effort to spend upon six lines in a copybook, time enough to write well two pages of legal cap.

320. In the primary grades, paper and long, medium-soft lead pencils should be used until the movement is thoroughly acquired.

The pupils should be taught how to keep their pencils and pens in order. They should be required to get blotters, pen wipers, and clean, smooth paper, and to use for practice purposes, plenty of foolscap or letter paper of good quality.

Require neatness, but do not allow the pupils *to draw the* letters to secure that result. Show that legibility depends upon correct forms of letters, uniformity in height, slant, spacing.

Teach pupils to practice self-criticism by comparison of their own work with the standard.

During the writing exercise the teacher must give his whole attention to it, and should make it pleasant to the pupils. General directions may be given to the class, but much of the teacher's help must be given to the pupils as individuals.

321. Writing of business forms, such as notes, checks, drafts, receipts and bills, will furnish agreeable variety and suitable matter for the practice work of middle and upper form pupils. Proper forms of business and social correspondence may also be taught.

322. Teachers should write well, but whether they write well or not, should *use the board* in teaching writing.

Show the importance of this suggestion.

323. The test of a good writer is the ability to produce readable manuscript readily.

324. As writing consists in producing certain forms conceived by the mind, it follows that putting letters into rectangular spaces, tracing what others have written, running the pencil in grooves and kindred devices are of little use in teaching writing.

THE TEST FOR GRADUATION.

325. The ability to write legibly, neatly and in good form, within three minutes, two stanzas from Longfellow's poem, "A Psalm of Life," or an equivalent selection not previously written.

DRAWING--SINGING.

326. The branches in which a course of study has been outlined, are those which are required by law to be taught in all common schools. The district board may authorize or require others to be taught. Among these, frequently, with the advice of the teacher, will be found drawing, vocal music, and nature lessons.

327. It is no discrimination against any branch that no formal course is outlined. Where teachers are prepared to give instruction in drawing and singing they are usually competent to arrange for themselves a satisfactory course. Drawing trains the eye and the hand and gives the power to express ideas graphically, greatly quickens and strengthens intellectual activity and comprehension in all branches of study, and lays the foundation for subsequent manual and technical skill in many industrial pursuits. That school is exceptionally fortunate whose teacher is alive to the value of drawing and skillful in giving instruction in it. The attempt of children to represent fairly what they see will lead them to see much more accurately. This is perhaps the best result of teaching drawing in schools. At the same time it turns the natural activity of children into profitable channels.

In what school subjects and for what purposes may drawing be used advantageously?

328. The training in attention, in the use of clear, distinct and musical tones, the subjection of the vocal organs to the will, the habit and the power of concerted action, as well as the opportunity for cultivating humane, patriotic and fraternal

sentiments, are features of education of great value, naturally promoted by carefully arranged exercises in vocal music and by persistent and judicious practice of them.

How can clear, musical tones be obtained? Is the training given in this subject of value in other branches? Show how.

329. As a rule children like to sing, and their disposition to do so should be so guided that good and not evil will result. It is very desirable that children should be taught to sing by note or by rote, the simpler familiar patriotic songs. Collections of suitable secular songs are common. Music should commend itself to all teachers for opening and closing exercises, on account of its power as a moral agent, as a balm for wounded spirits and as an inspiration to the highest endeavor.

SPELLING.

I.—Primary Form.

330. The first steps are in connection with reading. Oral spelling with the word in sight, and copying words on slates from blackboard, chart and reader. After the first year oral and written spelling of words dictated from the reader.

Why spell at first with the word in sight?

331. Frequent oral and written reviews of the more important and difficult words learned.

What is the value of oral spelling? Of written?

332. The pupils should be able to spell, both orally and in writing, all the words of the Second Reader. In order that common words may not be neglected, the pupils should occasionally be required to write sentences dictated from the reader and from books of like grade.

What is the value of a dictation exercise? What points should it test?

II.—Middle Form.

333. Pupils should be drilled in the oral and written spelling of the words found in the Third Reader, and in all other text books used by the pupil. Use a spelling-book and follow the methods therein outlined. Spell the new words used in all other recitations. Make much use of dictation exercises, and exercises with lists of words of different kinds;—as, verbs derived from nouns; terms used in arithmetic or other branches; synonyms, abbreviations. Careful training *now* will make the pupil a good speller. It will be so much more diffi-

cult to do it later, that in all probability it will never be well done. Difficult words must be brought up again and again, until the pupil forms the *habit* of spelling them correctly whenever he uses them in compositions or written examinations.

Make lists of the words frequently missed and drill frequently on those words.

Why use a spelling book? Why spell the new words used in other recitations? How will you prepare the lists mentioned in the last sentence? How should this drill be conducted?

334. Whenever the pupil spells, look closely to his writing; whenever he writes, insist on good spelling.

Show the importance of these suggestions.

335. In oral spelling the child should be required to syllabicate and pronounce the words for the aid it gives to reading and pronunciation. In spite of all the defects of our alphabet, pronunciation and spelling are mutually helpful. The old-fashioned way of mastering a word syllable by syllable should not be allowed to become one of the lost arts.

336. Habitual good spelling in everything written by the pupil, especially in examinations, where his mind is centered more upon the thought than upon the spelling of the word he is using, should be insisted upon.

III.—Upper Form.

COURSE OF STUDY.

337. Continue the practice of spelling the words met in all textbooks, and in supplementary reading. The best time to learn to spell a word is when we first meet it. We thus form a *habit* of noting new words carefully.

What is the value of the habit mentioned in the last sentence?

338. Master the spelling book, including two or three rules of spelling, as the following:

1. Monosyllables and words accented on the last syllable ending in a single consonant preceded by a single vowel double the consonant on taking a suffix beginning with a vowel.

2. Final silent *e* is omitted before a suffix beginning with a vowel except when necessary to retain the soft sound of *c* or *g*.

Of what value are rules in spelling?

339. Review lists of words mis-spelled.

340. Whatever form these exercises take require the pupils to pronounce the words. Correct pronunciation is of even greater value and importance than is good spelling. Why?

TESTS FOR GRADUATION.

341. The pupil should spell correctly through force of habit, whatever he writes. He should have the habit of consulting the dictionary in all doubtful cases. He may fairly be tested by his spelling in examination papers, by a list of words, not less than fifty in number promiscuously arranged, and by his ability to apply the principal rules of spelling.

CARE AND USE OF THE SCHOOL LIBRARY.

342. The value of the school library depends largely upon the teacher, who should have charge of it during term time. It should be kept in a secure case, and should be easy of access. The books should be so grouped that those bearing on related subjects should stand together.

CARE OF BOOKS.

343. Pupils should be carefully trained to keep books clean and whole. In this training the teacher's example is most effective, but it should be supplemented by kindly counsel.

This care develops greater respect for books, more regard for public property, habits of cleanliness, order, thoughtfulness and self-control. It gains for the teacher and pupils the pleasure of handling cleaner and more attractive volumes, and thus adds to the interest in the library. The books last longer, but the saving of money is the least important object to be gained.

344. Pupils should handle the books only when their hands are clean and dry. They should not be allowed to leave them on dusty or damp desks or shelves, in the sunlight or too near stoves, as the light fades and the heat warps the covers. They should not turn down the corners of the leaves nor mark the pages or covers. They should not be permitted to lay open books downward nor wet their fingers to turn the leaves. Neither should they be permitted to strap them up tightly and above all they should be taught to guard against letting them fall. These cautions apply with three-fold force to the teacher.

345. Books to be taken to the pupil's home should be carefully wrapped and guarded in inclement weather. Do not

make the child timid about using books, but teach him how to handle them properly.

USE OF BOOKS.

346. The vital thing, however, is to lead the children to love good books. To secure this result the teacher must know the books thoroughly and enjoy using them. He must be quick to turn to the library for apt information, illustration or inspiration. He must feel so keenly the pleasure of gaining new thoughts and new power from books that he will not rest satisfied until he has brought the boys and girls under the same spell. Real enthusiasm in a good work is contagious.

Primary Form.

347. Among untrained pupils the younger are generally the readiest to feel the charm of books. The books should be read to, and sometimes by, the pupils of the Primary Form to secure the following results:

1. To enlarge the vocabulary.
2. To quicken the imagination.
3. To give the first knowledge of many things outside the immediate surroundings.
4. To give practice in reading.
5. To stimulate the powers of observation.
6. To form a basis for oral language lessons.
7. To give early familiarity with good literature.
8. To give pleasure.

348. Most of the few books suited to the needs of pupils in this form must first be read to them by the teacher. Fortunately these small volumes contain the choicest of the famous old fables and folk stories, and a number of charming descriptions of child life and of the animal world.

Middle Form.

349. In this form the books should be used:

1. To supplement and add interest to the regular reading lessons.

2. To broaden the study of geography and give a wider knowledge of peoples, their customs, habits, peculiarities and relations to other peoples, and of the countless facts that alone give life and value to the lines, colors and spots that constitute maps.
3. To teach spelling, by observation, and furnish new lessons.
4. To teach language, by giving object lessons in the use of words and sentences by good writers, and to provide excellent examples for oral and written reproduction.
5. To incite a love for the study of history.
6. To furnish high ideals of life by interesting pupils in the biographies of great and noble men.
7. To familiarize pupils with specimens of good literature.

Upper Form.

350. In this form the principal benefits to be gained are as follows:

1. To extend the knowledge of all branches studied and to give greater interest.
2. To give pupils new lines of thought.
3. To store the minds with inspiring passages from great authors.
4. To afford opportunity to pupils to acquire information on any special subject.
5. To teach pupils to use books so as to get out of them information on desired subjects.
6. To give wider and larger views of life.
7. To lead to the formation of better ideals.
8. To impart the power of discriminating between good and poor books.
9. To awaken a taste for what is best in books.
10. To lead pupils to acquire the reading habit.

351. The results of a few years' training with a small library should be a love for good books, ease in understanding

their meaning, familiarity with allusions, facts and references that are common in good literature, and a good knowledge of a few of the literary masterpieces which are essential to a fair education.

352. A bright selection, or a chapter from a continuous story, if read at the opening of school will aid in securing prompt attendance. Beautiful passages, if read appreciatively, will often enliven the school when it has grown dull, or quiet it when restless. The reading of an extract from an entertaining book will often incite children to read the remainder.

353. For the special purposes for which each book is most valuable, read the notes under the titles of the books recommended by the state superintendent in his list of books for township libraries.

SUGGESTIONS.

354. As the library grows, put more stress upon the home reading of the books. An entertaining book will frequently catch the attention of the parents and will sometimes be read aloud with the whole family as an audience. This makes the relation between the school and the home more close, and should be encouraged by the teacher.

Talk over the merits and beauties of the books with the pupils before and after they read them.

If possible, lead the pupils to recognize fine and noble traits in the characters read about whether real or fictitious.

Draw the attention of the pupils to the most attractive pages, illustrations and bindings, and teach them to see the beauties of the printer's part of the work of book-making.

CLASSIFICATION OF PUPILS UNDER THE COURSE OF STUDY.

355. Arranging the pupils of a district school into classes, and allotting to each class the particular study which it must pursue, usually devolves upon the teacher. On this subject he may receive advice from the district board, and suggestions from the county superintendent; but very properly he is required to bear the responsibility. He can aid very materially the effort to introduce into the common schools the course of study herein advocated; for its success greatly depends upon the correct and efficient classification of the pupils. The following suggestions will prove helpful:

356. He should have a clear conception of the general plan of the Course of Study, the ideas upon which its three-fold division is based, the branches of study arranged under each form, the order of the subjects belonging to each branch, and the suggestions offered for pursuing and teaching these subjects.

357. When he knows the advancement of the classes he should determine their relation to the studies of this course.

358. In some schools there exist already the fundamental requirements for easy classification. With such conditions the teacher will consider one group of classes as belonging to the Primary Form, as they are pursuing exclusively the subjects of that form; another to the Middle, and the third to the Upper Form for the same reason. In many schools, especially those taught during the spring and summer, no advanced pupils will be enrolled. The children present can then be quite easily ar-

ranged under the first two forms. This should be done promptly, and the classes treated as progressing in the course.

359. In other schools there are far too many classes. Here little difficulty will be encountered in arranging the smaller children under the Primary Form. The teacher will have to see that all those who are reciting in the Primer and the First and Second Readers are also giving attention to the other subjects under that form. On their completion of these subjects he will arrange for their examination for promotion to the Middle Form. He should here establish a rule that a pupil who has not in some degree mastered the topics *associated* with these Readers, shall not, at the examination, be advanced to the next form.

360. By a similar procedure, though with more difficulty, he will be able to classify the pupils under the Middle Form. He can take the summary of the studies under the Middle Form and establish the closing limit for all the work accomplished therein. He can arrange for all pupils whose attainments are below this limit to study during the term with a view to reaching it. Those who have finished all the work named, he can bring at the proper time into the examination for promotion into the Upper Form. In judging of the advancement of the pupils he must allow for the study which has in many cases been carried on at home, as well as that which has been performed under his own eye in the school room. In fact, it is believed that this system of a course of study for the common schools will induce many children to pursue by themselves the common branches, particularly those in which they are deficient. The principal requisite to promotion must be the ability of the student to pass the required tests.

361. The teacher will often nfid the older children well advanced in some studies, and very deficient in others. In those studies in which they are deficient they should be induced, even at the loss of some pride, to bring forward their standing as speedily as possible. They should be shown the great mis-

take which they are committing in acquiring a partial and one-sided education. Before all the members of this Form can be placed the potent incentives to prepare for the final examinations in the Course, and for graduation which results from a successful trial on that occasion. These the teacher should present with all the skill and vigor which he can command.

362. He should not be discouraged if he does not for weeks find it possible to organize the older pupils under the regulations of the Upper Form. He should remember that he is endeavoring to introduce a new measure into the school and that success in such an effort always requires a considerable period for reflection and change of feeling. His work in this case is greatly increased by the fixed habits of the boys and girls over twelve years of age who have been trained in classes where there was no regular system to guide them, and who have not yet acquired sufficient independence and strength of mind to comprehend and accept the new arrangements. Besides, the conservatism of the district may sustain the views and conduct of these pupils. There may be a lack of suitable books; the attendance of these advanced children may be irregular; their education may be very unequal, and they may have no genuine enthusiasm for study. He should set himself resolutely to overcome all these for the benefit of his pupils. He must labor until he succeeds; by means of visits with the patrons, by personal influence with the district board, by reasoning with the older children, and, more than all else, by interesting pupils in the study of the various branches included in this Form. The particular measures to be employed in this endeavor he must discover while on the field.

363. He should strive to awaken the interest of the pupils and their parents in the school and in the introduction of the Course of Study. He may begin the use of some methods presented in it for the common branches. He may speak of the advancement of other schools which are trying it, and whose most forward pupils will be examined during the year for grad-

uation. He may explain the advantages of completing all the studies in the school, and receiving the diploma awarded at its close, and may assure them that elsewhere such exertions have been eminently successful. It will be an important point gained if he induces *one pupil* in his school to commence the effort to finish in the Upper Form the studies of the Course, and to present himself for the closing examination. This pupil is very likely to become the nucleus around which his associates will be collected and in this way the desired classification will be established.

364. The teacher should try to exclude text-books not belonging to the series adopted for the school. This is necessary to limit the daily recitations or exercises to the least practicable number and to arouse more interest in those which are established. If pupils have different texts in arithmetic, geography, history and constitutions, different classes must not be organized to accommodate them. The essential facts are the same in all.

365. The occasions are quite rare in which it would be proper to add the higher branches to the already overburdened program of the ungraded schools. The teacher may also induce the school board to adopt uniform text-books, as the law requires them to do. He will sometimes have to secure from the board books for children whose parents are unable to provide them.

PROGRAM OF DAILY EXERCISES.

366. A program of recitations and study periods should be posted in the school and closely followed. This orderly arrangement of classes saves the time of teacher and pupils, and develops a habit of preparing for tasks and meeting them promptly. The periods of study in different branches should be so arranged as to separate the studies requiring close application by lighter tasks. A program gives the teacher an opportunity to insist that pupils shall give their full thought to one topic till it is mastered. The power of holding the mind to one thing at a time till that is mastered is necessary to success in business and social life as well as in the school world.

367. If possible, secure the program of your predecessor before beginning the school. Examine it with care and use it until you are sure you can make a better one. Learn the number, age and capacity of the pupils who are to study each branch. Assign each pupil to his proper form, and then make as few classes as possible in each branch. Fix the time you will give to each branch. Take into consideration the number and age of pupils in determining the time you will allot to each class.

368. Any number of pupils in an upper form class requires more time for recitation than the same number in a Primary Form class; but a few pupils in an Upper Form class may require no more time for recitation than a large number in a Primary Form class. Primary Form classes should recite not less than twice daily, and oftener if possible. If it be impos-

sible to have all classes recite daily, let some recitations of the Upper Form alternate. Twice a week physiology may give place to drawing. In the same way language of the Middle Form may alternate with history and elementary science, the last two furnishing abundance of the best material for the language class.

369. When several pupils are studying the same branch in the same form and may be separated into several groups of two or three pupils each, and no two groups are working in the same place, do not consider it necessary to have a separate period for the recitation of each group. Have two or more of the groups most nearly equal in advancement recite together during the recitation period. During the recitation period each group in the class may be doing its proper work. But every effort should be made to unite these groups whenever possible into one class having the same lesson. By pushing the backward group and giving special help, while allowing the more advanced group to devote more time to other branches, they may often be brought together, and so the work of the school may be done more economically. Make special effort to have each pupil study all the branches for which he is prepared and which he has not completed in any form.

370. Have no pupil recite during two successive recitation periods if it can be avoided. Begin in the morning with those classes which may be depended upon to prepare for the recitation, or with those classes which are able to make little preparation, as Primary Reading classes. Writing or drawing should not come immediately after violent physical exercise.

In carrying out your program, before beginning any recitation be sure that every pupil except those in the class before you, has prepared or is preparing his next lesson.

371. The program presented on another page will probably not meet the exact requirements of any school in Wisconsin. It was not prepared for that purpose, but rather with the hope that the general order of arrangement and apportionment of

time might prove suggestive. The apportionment of time among the various branches may aid inexperinced teachers, and those liable to favor special branches, in making a proper distribution of the time at their disposal.

372. In the following program, the time is apportioned among the forms as follows: To the Primary Form, 95 minutes; to the Middle Form, 80 minutes; to the Upper Form, 115 minutes; to the Middle and Upper Forms working together in Physiology and writing exercises, 35 minutes; thus leaving 35 minutes for opening exercises and recesses.

373. By branches the time is apportioned as follows: To reading, 110 minutes; to arithmetic, 60 minutes; to language, 40 minutes; to geography, 35 minutes; to spelling, 25 minutes; to history, 20 minutes; to physiology, 15 minutes; to writing, 20 minutes; to opening exercises, 5 minutes.

374. In this program the highest class in each branch in each Form is the A class.

375. Pupils in the Primary Form should have daily exercise in writing on slates and in number work. Such instructions as may be necessary for this work should be given in some one of the recitation periods alloted for Primary Work.

376. Language exercises should be given in connection with the reading lesson in all classes which do not make a regular study of the subject.

377. PROGRAM OF RECITATIONS FOR A DISTRICT SCHOOL HAVING PUPILS IN ALL FORMS.

A. M.

Begin.		Form.	Branch.	Text-Book.
9:00	.....	.....	.....	Opening Exercises.
9:05	C	Primary	Reading	Primer or Chart.
9:15	B	Primary	Reading	First Reader.
9:25	A	Primary	Reading	Second Reader.
9:40	A	Middle...	Reading	Third Reader.
9:55	A	Upper.....	Arithmetic.....	Practical.
10:15	.....	.....	Physiology	General Exercises, Middle and Upper Forms.
10:30	Recess.			
10:45	C	Primary	Reading	Primer or Chart.
10:55	A	Primary	Arithmetic	Oral.
11:00	A	Middle...	Geography... ...	Outline Map and Elementary Text-book.
11:20	A	Upper.....	Geography.....	Advanced Text-book.
11:40	A	Middle.....	Arithmetic.....	Rudiments.
12:00	.....	.....	.....	Intermission.

P. M.

1:00	A	Upper.....	History and Constitution.	Where both branches are studied, classes may alternate
1:20	C	Primary	Reading	Primer or Chart.
1:30	B	Primary	Reading	Firs Reader.
1:40	A	Primary	Reading	Second Reader.
1:50	A	Middle...	Language.....	Language Lesson.
2:10	.....	.....	Writing.....	General Exercises, Middle and Upper Form.
2:30	Recess.			
2:45	A	Upper.....	Language.....	Language Lessons or Grammar.
3:05	B & C	Primary	Arithmetic.....	Oral.
3:15	A	Upper.....	Reading	Fourth Reader.
3:35	A	Middle.....	Spelling.....	Spelling book,
3:45	A	Upper.....	Spelling.....	Spelling book.
4:00	.....	.....	.....	Dismissal.

The following "Form" program of study and recitation may be of service to the teacher in making out her daily program:

Subjects	Open	Min.	Primary	Middle	Upper
Arithmetic	9:00	10		Opening Exercises.	
60 Min.	9:10	20	Seat Work	Arith.	**Arith.**
Reading	9:30	20	Reading	**Arith.**	Reading
90 Min.	9:50	20	**Number**	Reading	Geography
Geography	10:10	20	Form Work	Geography	**Geography**
40 Min.	10:30	10		Recess.	
Language	10:40	20	Reading	**Reading**	Grammar
30 Min.	11:00	20	**Reading**	Geography	Grammar
History	11:20	20	Seat Work	**Geography**	Hist. Const.
Constitution	11:40	20	Reading	Form Work	**Reading**
and	12:00	60		Intermission.	
Reading	1:00	10		Opening Exercises.	
40 Min.	1:10	20	**Reading**	Physiology	Physiology
Writing	1:30	20	Form Work	History.	**Grammar**
Language	1:50	20	Reading	**Hist. Read.**	Hist. Const.
20 Min.	2:10	20	**Writ. Lang.**	**Writ. Lang.**	**Writ. Lang.**
Physiology	2:30	10		Recess.	
Agriculture	2:40	20	Spelling	Spelling	**His.Con.Read.**
etc., 30 Min.	3:00	20	**Phys. Nat. Wk.**	**Phys. Nat. Wk.**	**Phys. Agric.**
Spelling	3:20	20	**Spell. Read.**	Arith.	Spelling
20 Min.	3:40	20	Excused	**Spelling**	**Spelling**

SCHOOL RECORDS.

378. The records kept by most of the common schools include only the enrollment, age, attendance and deportment of the pupils. The important items of the classification, standing and progress of these pupils in the studies of each form are wholly ignored. Yet these are important requisites for establishing and maintaining a continuous course of study in the country schools. A record should be kept of the classes which each pupil enters, the time of entering, time of leaving, his standing gained in recitations or examinations, his advancement in his studies during the term, his promotions to higher classes, and suggestions to the succeeding teacher where the pupil should begin at the opening of the next term..

379. The teacher is provided with a register in which should be recorded a summary of the items specified above.

380. The proper classification of pupils of the common schools and their regular advancement through the course of study depend greatly on making proper records of each pupil's work in each study.

381. The impression seems to prevail that school records are complicated, and therefore difficult. The truth is that the plainest and simplest plan possible is best.

382. All facts relating to the school necessary for the reports required by law or by the department of public instruction, may be found in the teacher's register if it has been properly completed.

RECORD OF WORK DONE DURING THE TERM BEGINNING..... , 190. ENDING ..... 190..

TEACHER.....

After completing the record of any class, draw a line underneath the record, the entire length of the page, to separate it from the record of the next class. First make a complete record of each class in each branch in the Upper Form, then corresponding records for the Middle Form; then for the Primary Form. When the record of a class is complete, enter in the next line the pupils belonging to the class by their numbers, as given in the register.

Subject.	Class.	Form.	Text-book.	Pages Mastered.	Suggestions for the next term.	Work done outside of text-book and extent of work under the various topics in the "Course of Study" for this branch, as found in the "Manual."
Arithmetic.	A.	Upper.	Fish-Complete.	265-394	Review from p. 380.	Omitted Compound Interest, Stocks, Bank Discount, Foreign Exchange and Duties. Followed plan and "Suggestions" in "Course of Study," and "Suggestions to Teachers," found on pages —, — and — of "Manual of Course of Study."—Ninth Edition.
Number of the pupils in this class, as found in first part of the Register; 6, 8, 12, 15, 16, 19.						

Proceed as above with the remaining classes. The items under subject, class, form, text-book used, and the page on which work was begun under "Pages Mastered," should be entered early in the term. Subjects omitted, and work done outside of text books should be entered at the time. The remaining items should be entered during the last week of the term.

If your register does not contain blanks for these records, use foolscap paper, ruling it so that the records as above shown will run lengthwise of the paper.

EXAMINATIONS AND GRADUATION.

383. Besides the usual examinations of pupils held for the purpose of assigning them to the different classes under each form and for determining their progress in their school work, there must be held three special examinations, one for the purpose of determining whether certain pupils are ready to be promoted from the primary form to the middle form, one for determining what pupils are ready to be promoted from the middle to the upper form, and the last and perhaps the most important, to ascertain what pupils have so satisfactorily completed their work as to be entitled to graduation.

384. The examination for promotion from form to form should usually take place at the close of the term. It sometimes occurs that there are pupils in the school who, because of certain advantages, may be prepared to take up work in the next form above before the close of the term. Special examinations may be given such pupils as the judgment of the teacher may direct. The teacher should, however, consult the school board or the county superintendent in regard to these examinations for individual promotion. The school record should be so kept as to show when all promotions are made. The examination held for the purpose of determining who have completed the full course of study should occur but once each year, probably at the close of the winter term. The reasons for fixing this date are obvious. While the examinations for promotion from one form to the other, and from one class to the other, may be largely oral the examination for graduation

should be chiefly written and a minimum standing for each study with an average for all the studies should be fixed. The county superintendent must be consulted upon this point. It is clear that there should be no spirit of favoritism shown by the examiners nor should any pupil be permitted to pass without meeting the required test in the prescribed studies. The character of his daily recitations and his ability as tested in the occasional examinations may, however, be considered by the examiners when the final standing of each pupil is determined.

385. The examinations for promotion from one form to another should be held by the teacher with the consent of the board or executive committee and under the direction of the county superintendent. The county superintendent should suggest the standings to be fixed at each of the examinations and the examination for graduation should be conducted largely under his direction, and he should furnish the questions to be submitted and outline a specific plan and program to be followed.

386. The usual method of conducting the examination for graduation from the common schools is for the county superintendent to send to each teacher a few days before the time fixed for the examinations throughout the county, a copy of the questions, securely sealed in an envelope with instructions printed on the outside. This envelope must be opened by no one except the teacher and by the teacher only in the presence of the pupils. The reasons for this are plain. When the papers of all the pupils are marked and graded by the teacher, the papers of those whose standings meet the required test as well as the papers of those whose work is doubtful, are forwarded to the county superintendent for further and final examination. A form of statement prepared by the county superintendent should be filled out by the teacher and signed by at least two of the older pupils in the school, to the effect that they were witnesses to the opening of the sealed envelope containing the ques-

tions and that said envelope was opened in the presence of the school assembled at that time. This plan of final examination is common and in many cases is probably the best that can be devised. Some county superintendents have, however, secured a special allowance from their county board of supervisors permitting them to engage three examiners, none of whom shall be interested either directly or indirectly in any of the applicants for the graduation diploma. This examining board holds the examinations in different parts of the county, as directed by the county superintendent. Upon this board rests the responsibility of marking the papers and sending the results to the county superintendent. The county superintendent must, however, reserve the privilege of refusing to accept the markings and he will issue the diplomas in accordance with his judgment. This plan, where adopted, has been very satisfactory. The county superintendent should use every effort in his power to stimulate pupils to attempt these examinations, as well as the examinations for promotion from form to form. In this way he will render the schools under his jurisdiction a most excellent service. He must also exercise sound discretion as to the character of the questions submitted and the method of conducting the examinations. It will no be out of place for him to send to his teachers neatly printed certificates of promotion from form to form. The diploma issued after the final examination should be neat and appropriate in form and matter and should contain places for the signature of the teacher, at least one member of the school board and the county superintendent. It should be a document prized by the holder.

387. COMMON SCHOOL CERTIFICATE.

Primary Form.

This certifies that —— ——, of District No. —, in the town of ——, in the county of ——, State of Wisconsin, is herewith promoted to the Middle Form, for having completed that por-

tion of the Course of Study in the Common Branches embraced in the Primary Form of the Public School of said district.

——, A. D. 19—. ——— ———, *Teacher.*

——— ———, *Director of District No. —.*

388. COMMON SCHOOL CERTIFICATE.

Middle Form.

This certifies that —— ——, of District No. —, in the town of ——, in the county of ——, State of Wisconsin, is herewith promoted to the Upper Form, as —— has this day completed that portion of the Course of Study in the Common Branches embraced in the Middle Form of the Public School of said district.

——, A. D. 19—. ——— ———, *Teacher.*

——— ———, *Director of District No. —.*

389. DEPARTMENT OF PUBLIC SCHOOLS.

——— County, Wisconsin.

Common School Diploma.

This certifies that —— ——, of District No. —, in the town of ——, has this day completed the Course of Study in the Common Branches required by Law to be taught in the Public Schools of the State, viz.: Reading, Spelling, Orthoepy, English Grammar, Arithmetic, Elements of Agriculture, Geography, Writing, United States History, the Constitution of United States and that of Wisconsin, Physiology and Hygiene.

——, A. D. 19—. —— ———,

County Superintendent of Schools.

——— ———, *Teacher of District No. —.*

——— ———, *Director of District No. —.*

COURSE OF STUDY

FOR

State Graded Schools

OF

WISCONSIN

INTRODUCTORY.

Complying with the requests of many superintendents and teachers, the Course of Study for State Graded Schools is printed in connection with the course of study for the common schools of this state. This course of study will assist all teachers to determine how much work should be attempted each year of each form. The teacher, however, should keep in mind that under the course for one department schools nine years' work is outlined while under the state graded school course the same amount of work is completed in eight years.

The law relating to state aid for graded schools provides as follows:

"Sufficient equipment, including globes, maps, blackboards, library, and other essentials for the proper work of the school, shall be provided by the school district.

Each department, the primary excepted, should be provided with a globe, and a good set of outline maps. The lower department should have a good reading chart, and each department should have a good blackboard of not less than fifty square feet.

There should be in each school a well equipped library of books, selected from the township library list issued by the State Superintendent. Each school should also have sets of supplementary first, second and third readers, and a set of geographical readers. These books are inexpensive, and if properly cared for will last a number of years.

The attention of teachers, county superintendents, and school boards is called to the statute providing for the organization of graded schools of the first and the second class in Wisconsin.

So much of chapter 439, of the laws of 1901, amended by the laws of 1903 and 1905, as pertains to this subject is herewith given.

CHAPTER 439, LAWS OF 1901.

AID TO GRADED SCHOOLS.

Districts which may receive state aid for graded schools. SECTION 9. The school board of any school district containing within its limits a graded school but no free high school, nor a high school of a grade equivalent to a free high school, town free high schools excepted, may receive special state aid as hereinafter provided, upon full compliance with the following conditions:

Classes. 1. There shall be two classes of state graded schools in Wisconsin, known respectively as first class, and second class; all state graded schools of three or more departments shall be in the first class, and all state graded schools of two departments shall be in the second class.

2. Schools shall be maintained in the district receiving such aid, at least nine school months, including legal holidays, in each and every department. At least three departments in schools of the first class and both departments in schools of the second class shall have an average daily attendance of not less than fifteen pupils for the entire school year, to entitle the school to state aid.

Qualifications of teachers. 3. All persons employed in both classes of graded schools applying for state aid shall be competent teachers and shall hold the following grade of certificates: The principal of a state graded school of the first class shall hold some form of a state certificate. In each school of this class one assistant shall hold a third grade certificate, or a certificate of a higher grade, provided such assistant, if holding a third grade certificate, shall also have had one year's successful experience as a teacher in the public schools of Wisconsin; one assistant shall hold a second grade certificate or a certificate of a higher grade, and all other assistants shall hold first grade certificates or certificates of a higher grade. The principal of a state graded school of the second class shall hold a first grade county certificate, or some form of a state certificate, and the assistant shall hold a third grade certificate or a certificate of a higher grade, provided such assistant, if holding a third grade certificate, shall also have had one year's suc-

cessful experience as a teacher in the public schools of Wisconsin. The word "principal" is hereby interpreted as meaning the teacher of the highest grade or grades in the school who shall have immediate supervision of all the grades; the word "assistant" is hereby interpreted as meaning each and every teacher in a state graded school other than the principal.

Condition of building and grounds. 4. The schoolhouse or schoolhouses, the outhouses and grounds, the furniture and equipment, shall be maintained in good condition and kept free from any unsanitary feature.

Equipment required. 5. Sufficient equipment, including globes, maps, blackboards, library, and other essentials for the proper work of the school shall be provided by the school district.

Application for aid; must be inspected. 6. When the school board of any school district desires to secure state aid for its graded schools, said school board shall make written application for the same to the state superintendent. No graded school shall be entitled to be placed upon the list of state graded schools and to receive special state aid until said school shall have been duly inspected by the state superintendent, or some member of his staff, and found to be fully complying with all the conditions of this act.

Application before September 1. 7. In order that any graded school may receive special state aid as herein provided, application shall be made to the state superintendent by the school board before the first day of September preceding the school year for which said special state aid is requested.

Amount of aid for two classes of graded schools; apportionment. SECTION 10. Any school district which shall have maintained a graded school of the first class in accordance with the provisions of this act shall be entitled to receive from the general fund of the state, annually, the sum of three hundred dollars. Any school district which shall have maintained a graded school of the second class in accordance with the provisions of this act shall be entitled to receive from the general fund of the state, annually, the sum of one hundred dollars. To obtain such state aid the school board shall on or before the first day of August of each year, succeeding the school year in which application is made, report to the state superintendent, under their oaths, that such state graded school has complied

with all the provisions of this act. Thereupon, the said state superintendent shall fix the amount to be paid such district, and certify the same to the secretary of state; the secretary of state shall then draw his warrants upon the state treasurer for the several claims of the school districts. The secretary of state shall annually include and apportion in the state tax such sum as shall have been certified by the state superintendent under the provisions of this act; upon receipt of the annual state taxes said state treasurer shall pay to the school district treasurers, the several amounts called for by such warrants. The state superintendent is hereby empowered to refuse state aid to any school district which in his judgment has failed to comply with the provisions of this act. The whole amount annually paid under the provisions of this act shall not exceed eighty thousand dollars, and if more be demanded by the state graded schools, it shall be paid proportionally. Any unexpended balance shall revert to the general fund.

Inspectors. SECTION 11. The state superintendent is hereby authorized to appoint two persons of suitable qualifications to assist him in inspecting and supervising the state graded and free high schools, and to aid him in giving information and needed assistance to localities in organizing such schools. Such persons shall be known as state school inspectors.

Course of study; reports. SECTION 12. The state superintendent shall prepare a course of study suitable to be pursued in graded schools, publish the same, and furnish to school boards upon application. This course of study shall be followed by all state graded schools, as one condition of securing special state aid. Said state superintendent shall furnish suitable blanks for annual and special reports for all such state graded schools, which reports shall call for such information as he may deem necessary. The refusal or neglect of the school board or any of its officers to file these reports with the state superintendent when called for, shall be deemed sufficient ground for refusing special state aid, as provided for in this act.

Number limited; incorporated cities excluded. SECTION 13. No more than one such graded school in any village, or school district or sub-district, shall receive state aid as herein provided, nor shall any graded school in any incorporated city participate in said state aid.

COURSE OF STUDY.

FIRST GRADE.

390. Reading.

Blackboard, word cards, charts and First Reader.

1. Learning to call at sight, from blackboard, word cards, charts and books all the words found in the Primer and First Reader.
2. Reading at sight sentences formed from the words learned.
3. Phonic drill or separation of spoken words into their elementary sounds and association of these sounds with the letters which stand for them.
4. Drill in articulation.
5. Intelligent, distinct and ready reading of lessons on the chart and in the Primer (if one be used), and First Reader.
6. Demand correct expression from the very first. Word calling is not reading.
7. Develop the power in the child to grasp the group of words at sight.

391. Language.

1. *Conversational Exercises.*

The teacher should talk with the children about things with which they are familiar. Thus two ends will be attained: cultivation of the power to express thought, and familiarity with the teacher. Considerable of this work should be done before any teaching is attempted in other branches.

2. *Picture Talks.*

Train the children to talk about interesting pictures which may be on the reading chart, in the Primer, or furnished by the teacher. This work should not consist in the teacher's asking questions and the children's answering them in one or two words; questioning in such a way does not develop language. Neither does it consist in the teacher's asking questions and rigidly insisting that the children answer in complete sentences. This is not language but something that is entirely mechanical. Language means converting thought into connected expression. Lead the children to talk connectedly about the picture. Children having sufficient imagination may be led to tell delightful little stories which portray action.

3. *Simple Story Telling.*

This should consist both in having the children tell the simple stories which they read in the Primer and First Reader, and of stories told to the children by the teacher and retold by the children. Insist on the child's telling the complete story. Do not hamper his thought and cripple his language by questions; questions have their place, but it is not to develop language. Let the questions come after the child has told all he can without interruption, then question him to bring out points he has omitted.

Little attention should be paid to errors in language until the child can talk connectedly and fluently. The first object is to get the child to use language of some kind, then mould this into correct expression.

392. Arithmetic.

1. Counting, grouping, and other object exercises in number.
2. Reading and writing numbers to 100.
3. Addition and subtraction of ones and twos with single digit numbers.

4. Simple practical problems by teacher and pupils, based on "3" of the foregoing.

This work may be done incidentally in connection with reading, writing, language and drawing. Reading, writing, spelling and language should be emphasized in the primary form. Arithmetic can very readily be finished later on, when the pupil has secured a fair mastery of the subjects mentioned.

Objects should be used to teach the meaning of numbers and in connection with counting. Do not use objects to teach addition. Addition is a memory process and must be taught as such.

393. Spelling.

1. Oral spelling from chart and reader.
2. Copy words from blackboard.

394. Writing.

1. Training in position, and manner of holding pencil.
2. Letters, words and sentences from blackboard.
3. Words and sentences from Reader.
4. Secure good form.

Pupils may use slate or paper and soft pencil.

395. Drawing, Singing.

See Common School Manual.

395a. Physiology.

See Common School Manual, numbers 270, 271.

SECOND GRADE.

396. Reading.

Supplementary First Reader and Second Reader, blackboard and charts prepared by teacher, giving lists of new words taught for use in drill in pronunciation.

1. Continue work begun in First Grade in phonic drill, introducing marks of long and short vowels and consonants.
2. Continue drill in articulation.
3. Drill in reading to secure an agreeable tone of voice, ready control of vocal organs, correct emphasis and inflection.
4. Simple stories, fables, and folk lore, read to and by the pupils and told by the pupils.
5. Short pieces memorized and recited.

Use first reader for first four months at least; use it longer if pupils are backward.

397. Language.

1. Continue oral language work in connection with the reading.
2. Tell a story or fable and then ask for its oral reproduction.
3. Teach pupils to use a capital letter at the beginning of a sentence, that the pronoun I should always be a capital, and the correct use of the period and question mark.

4. *Correct Use of Troublesome Words.*

There is but one way for a child to learn to do a thing and that is by actually doing it. A child can never learn to use, to, too, two, was, were, have, has, etc., correctly by filling blanks. That is asking the child to do a thing that he knows nothing about. The only time to use the blanks is at the very

last as a test to find out whether the child has acquired the habit of using these words correctly. To learn to use these troublesome words correctly, the child must have daily practice in using them correctly in his ordinary work.

398. Arithmetic.

1. Reading and writing numbers to 1,000.
2. The forty-five combinations of addition and subtraction thoroughly mastered.
3. Multiplication tables of twos and threes.
4. Names and uses of $+$, $-$, $\times$, $\div$, $=$.
5. Simple problems by teacher and pupils based on the foregoing.
6. Base all work done by pupils at their seats on their absolute knowledge of the combinations. Do not let a combination enter into their written work unless you are absolutely certain that the pupils know it, otherwise the pupils will count and not add.

399. Spelling.

1. Oral spelling of new words of reading lesson.
2. Drill on syllabication, pronouncing each syllable after spelling it.

400. Writing.

1. Training in position, and manner of holding pencil.
2. Copying from blackboard.
3. Copying from reader.
4. Secure legibility.
5. Work for perfect form.

401. Physiology and Hygiene.

See Common School Manual, numbers 270, 271, 272.

402. History.

Oral work.

1. Stories about boyhood of Columbus, Franklin, Washington, Lincoln.
2. Stories from mythology.

No special period for the foregoing is needed. It can be covered in connection with the language work.

403. Drawing, Singing.

See Common School Manual.

THIRD GRADE.

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404. Reading.

Supplementary Second Reader and books of similar grade from the school library, blackboard and charts prepared by the teacher giving lists of new words taught, for use in drill in pronunciation.

1. Work in phonic drill and diacritical markings continued.
2. Continue drill in articulation using difficult combinations of sounds.
3. Continue work indicated in 3, 4, and 5, for second grade.

405. Language.

1. Continue the work on the story and its oral reproduction by the pupil.
2. Have pupils write short stories from pictures and geography work.

3. Commit to memory choice selections found in the reader or other books.
4. Correct errors. Insist on correct language.

5. *Language and Reading.*

406. After the second grade, and if possible during the second year, pupils should tell the story of their reading lesson at each recitation *before* reading. When the class is large it may not be possible to have every member of the class tell the story every time, but at least a part should do so. Do not question them until they have finished talking. If at first the children do not know how to proceed, the teacher should tell the story, for them in very simple language and in an interesting manner, then have the children tell it. This will not need to be done many times before the children get the idea, and will be able to tell the story without help from the teacher. For variety have them read a paragraph silently and then call upon the pupils to give the substance of the paragraph. This will cultivate a habit of thoughtful reading. Also have one member of the class read orally while the others listen, then call upon different members of the class to tell what was read. This will stimulate the power of attention and give training in language. Continue language in connection with reading during the entire course.

6. *Written Language.*

As soon as the child has learned to tell a story well orally, and has learned to write, the writing of stories should be commenced. From this time on, have the children do both oral and written work in language.

7. *Punctuation and Capitalization.*

Drill upon correct use of capital letters and punctuation marks commonly used, as soon as written language is com-

menced. Teach these subjects every day in connection with written language. Cultivate the habit of doing these things correctly by practice.

407. Arithmetic.

1. Review thoroughly the entire work of second grade.
2. Notation and numeration to 10,000.
3. Multiplication tables mastered as far as the 6's, inclusive.
4. Processes of the four fundamental operations thoroughly mastered, so far as their knowledge of the multiplication table permits. Addends, minuends, and dividends not to exceed one thousand; divisors not to exceed one digit.
5. Master portions of the tables of liquid, dry, and linear measure so far as their reduction can be used in the operations indicated above. The reduction should be limited to two denominations in the same example.
6. United States Money.
   Reading and writing numbers representing dollars and cents, and simple operations involving their use.
7. Practical problems by teacher and pupils involving the foregoing.

Strive to secure accuracy and rapidity, nothing short of absolute accuracy is of any value.

408. Geography.

1. Observational Geography.
   a. Exercises on location.
   b. The land and water forms of the home region.
   c. Elementary facts in the physiography of the home region.
   d. Elements of industrial geography.
2. Geographical stories told and read to pupils.

Geography work in the third and fourth grades should be conducted largely as a language exercise. Geographical stories should be read to and by the pupils and reproduced by them both orally and in written form.

Geography work of this grade may be done in language class in schools where program is crowded. Geographical and historical stories make the best possible basis for language work.

Note: The following books found in the district library will be found valuable in carrying out the work outlined in the third and fourth grades.

"Big People and Little People of other Lands," "Fairbank's Home Geography," "Little Folks of Many Lands," "Children of the Palm Lands," "Our Little Chinese Cousin."

409. Spelling.

1. Use a good spelling book and have the pupils spell orally twice per day from it.
2. Continue oral spelling of difficult words from reading lesson.
3. Have pupils pronounce words before they attempt to spell them.
4. Give oral and written reviews.

410. Writing.

1. Copying with pencil and paper.
2. Use of pen taught,—training in position, movement and manner, same as with pencil, care of the pen.
3. Insist on neatness and legibility in all written work.

411. Physiology and Hygiene.

See Common School Manual, numbers 270, 271, 272.

412. History.

1. Stories from mythology continued.
2. Biographies of Columbus, Franklin, Washington, Lincoln, Longfellow.
3. The Indians.

This may also be taken in connection with language work. It should be largely oral. The teacher may tell or read a story and then call on the pupils for reproduction.

413. Drawing, Singing.

See Common School Manual.

FOURTH GRADE.

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414. Reading.

Third reader and books of similar grade found in the school library.

1. Work in phonic drill, in diacritical markings, and in correct articulation continued.
2. Mastery of the thought and of the pronunciation of words insisted upon as a preparation for the oral reading of the lesson.
3. Pupils trained in stating orally the substance of the reading lesson, sometimes before and sometimes after the reading, aiming to secure good expression. (That the pupils follow closely the words of the lesson is not objectionable.)

4. Good expression should be insisted upon. Frequent reading of lessons already gone over and with which the pupils are familiar will give excellent opportunity for drill in expression.
5. Choice selections memorized and recited.

415. Language.

1. Continue the reproduction of the story both orally and in writing.
2. Teach letter writing, paying particular attention to capitalization, punctuation, and arrangements of the parts.
3. Continue the work of writing stories from pictures.
4. Secure the correct use of possessive and plural forms of nouns and the common irregular verbs.
5. Correct errors. Insist on correct language.

In this grade teach the form of the composition. Some instruction may be given along this line earlier than the fourth year; this will depend somewhat on the advancement of the pupil.

416. Arithmetic.

1. Thoroughly review the work of second and third grades.
2. Notation and numeration to third period. Law of decimal notation developed so far as it relates to integers.
3. Complete work on multiplication tables and processes in division.
4. Definitions of terms used.
5. Forms of bills and receipts.
6. Continued drill in practical problems, formulated by teacher and pupils, including use of United States money, dry, liquid, and linear measures, and avoirdupois weight.

Do not use large numbers. Quick, sharp drills on many problems involving small numbers are far preferable to work on a few problems involving large numbers. Divisors as a

rule should not exceed three digits. A few examples involving larger divisors may be given for the purpose of testing the power of pupils.

417. Geography.

1. Needed reviews on, and amplification of, work on observations; geography.
2. Work on geographical stories continued, (read by pupils).
3. Lessons on the globe.
   a. Shape and size of the earth.
   b. The rotation of the earth on its axis and the effects of the rotation.
   c. The great land and water forms of the earth.
   d. Transition of the globe to outline maps.
   e. The races of men, and their distribution.
   f. Lessons on the earth as the home of man.
4. Lessons on outline maps.
5. Elementary text book introduced.

Teach the use of the text book and do enough work with it so that the pupils' work will be strong during the following year.

418. Spelling.

1. Oral spelling from speller twice per day.
2. Continue the oral spelling of difficult words from the reading and other lessons.

419. Writing.

1. Copy book No. 3.
2. Secure legibility.
3. Letter writing.
4. Insist on neatness and legibility in all written work.

420. Physiology and Hygiene.

See Common School Manual, numbers 273, 274, 275, 276.

421. History.

1. Biographies of Captain John Smith, Daniel Boone, Grant, Morse, Whittier, Bryant, Webster.
2. Pioneer history stories of the Mississippi valley.
3. Stories of the Badger state.

The foregoing may be given in connection with language work and supplementary reading.

422. Drawing, Singing.

See Common School Manual.

FIFTH GRADE.

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423. Reading.

Supplementary Third Reader, and books of similar grade from the school library.

1. Continue work indicated in course of study for preceding grade and teach use of dictionary for pronunciation and as an aid in getting meanings of words.
2. Frequent exercises in sight reading from books in the school library and from work previously gone over in the readers.
3. Choice selections memorized and recited. One exercise a week may well be given to the recitation of memorized selections. Train for good expression.

Several copies of an academic dictionary should be available for above work.

424. Language.

1. Language book as a basis for work outlined below.
2. Continue work of letter writing, giving attention to paragraphing, correct syllabication at end of line, punctuation, capitalization and penmanship.
3. Drill on correct use of pronouns and the irregular verbs.
4. Brief compositions on simple and familiar topics, suggested in the reading and geography lessons.
5. Have pupils write short compositions from brief outlines.

425. Arithmetic.

1. Short, sharp drills in the fundamental operations.
2. Factors and factoring.
   a. Tests of divisibility of numbers.
   b. Prime factors to 100.
   c. Separation of numbers into prime factors.
   d. G. C. D.
   e. L. C. M.
3. Determine L. C. M. largely by inspection. Limit this work to numbers whose L. C. M. does not exceed 144. Thoroughly master tables commonly used as liquid, dry, linear, square and cubic measure, avoirdupois weight, etc., and give practical problems involving reduction of the same. Limit tables to those in common use, and to two denominations in the same example or problem.

426. Geography.

1. Primary text book in geography completed.
2. Supplementary readings from library.
   a. Pay special attention to the physical features as determining climate and hence productions.
   b. Teach a few cities but dwell upon map forms, large

areas of productions and what is done with products; the work of man.

c. Use library books in teaching how raw materials are manufactured, land irrigated, harbors deepened, mountains tunneled, land cultivated, etc.

427. Spelling.

1. Have oral spelling from a speller.
2. Continue the oral spelling of difficult words from the reading lesson.

428. Writing.

1. Copy book No. 4.
2. Movement drills.
3. Business forms, letter writing, and composition.

The penmanship of pupils in this grade should be uniformly good. The estimate of the pupil's standing in penmanship should be based as much upon his habitual performance as shown in his daily written work, as upon his special penmanship papers.

429. Physiology and Hygiene.

1. Digestion.
   a. The organs of digestion briefly described.
   b. The work of each of these organs.
   c. Good habits of eating; some bad but common habits of eating. The effect of bad foods and stimulants upon the organs and upon the process of digestion. When to take exercise. The kinds of food needed by the body, and the purposes for which they are required.

See Common School Manual, number 277.

2. Breathing.
   a. The structure of the lungs.
   b. Function of the lungs and how they perform it.
   c. Proper habit of breathing. Keeping the lungs free from pressure. The effects of bad air. Need of pure air. How to keep the air pure in and about our houses. Helpful breathing exercises. See Common School Manual, number 279.
3. The circulation.
   a. The heart, arteries, veins, and blood.
   b. The office of the blood. Its relation to digestion and breathing. The manner of its circulation.
   c. How the quality of clothing and the manner in which it is worn affect the circulation. How alcohol and narcotics impoverish the blood, make it impure and retard the circulation. Danger of blood poisoning in various ways. The good and bad effects of exercise. Common School Manual, numbers 278, 281, 281a, 289.
4. The nerves.
   a. A brief general study of the nervous system including the nerves and chief nerve centers. The nature of nerve tissue.
   b. The chief office of the nervous system. Some of its special offices.
   c. How the nerves are affected by fatigue of the body, by overworking the mind; by cheerfulness, or a lack of it. The necessity of regular and sufficient sleep and exercise. How alcoholic liquors, tobacco and other stimulants and narcotics injure the nerves and through them disturb the functions of other organs. See Common School Manual, numbers 282, 283, 284, 285, 286, 287, 288, 290, 291.

430. History.

1. Study of biography and great events in the United States history continued.

2. American inventions and inventors.

Use an elementary text which is written in biographical form. See following suggestions.

Let the pupils reproduce orally and in writing the portions studied.

Language and History.

The work in history in all grades below the sixth consists of biographical sketches of great men, interesting historical stories, and tales of travel. This work makes the best possible basis for language work and should be conducted largely as a language exercise. Have the pupils tell these stories without interruption. Questions should come after story is completed, for the purpose of bringing out points omitted. Have the oral exercises followed by written exercises.

SIXTH GRADE.

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431. Reading.

Fourth reader and supplementary work in books of a similar grade found in the school library. Geographical readers on Western continent.

1. Intelligent reading insisted upon as a basis for expressive reading. Meaning of words, phrases, clauses, and sentences must be clear to the pupil in order that he may read intelligently. The study of the dictionary by the pupil must be supplemented by the teacher's instruction in the meaning of words and expressions.
2. Careful preparation for each day's reading lesson should be insisted upon by the teacher. Unless the teacher makes definite assignment of work to be prepared the pupils cannot be held responsible for preparation.

3. Reading of library books by pupils for pleasure as well as for information; this reading should be done at home and in school outside the period devoted to the reading recitation. Pupils may report orally on this reading during the language recitation period.
4. One exercise a week in the recitation of selections memorized,

432. Language.

1. Language Book.
2. Continue work of writing compositions from outlines.
3. Have pupils write compositions based on their own experience.
4. Secure definite and orderly arrangement of oral and written expression.
5. Combine short, simple sentences into easy connected discourse.
6. Analysis of simple sentences.

433. Arithmetic.

1. Fractions.
   a. Nature of fractions.
   b. Reduction of fractions.
   c. Reduction of improper fractions to whole or mixed numbers.
   d. Addition and subtraction of fractions.
   e. Multiplication and division of fractions.
   f. Practical problems by teacher and pupils, based on the foregoing.
2. Continue writing of bills, accounts, orders, and receipts.

Master thoroughly the principles by means of fractions having small denominators. Nine-tenths of the work in fractions should be done with denominators not to exceed 24. Reduction of fractions is the principal unit. When that is thor-

oughly understood, addition and subtraction will not present any difficulty.

3. Decimals.
   a. Nature of decimals.
   b. Reading and writing of decimals.
   c. System of decimal notation, extended to decimal fractions.
   d. Addition and subtraction of decimals.
   e. Multiplication of decimals.
   f. Division of decimals.
   g. Reduction of decimals to common fractions and of common fractions to decimals.
   h. Practical problems formulated by teacher and pupils, based on the foregoing.

4. Continue the work on tables in common use. Give practical work only in denominate numbers. Restrict to two denominations in a problem or example.

434. Geography.

1. Advanced text book in Geography.

2. Supplementary geographical readers.
   a. Western hemisphere completed by the tracing and sketching method, special attention being given to the United States.
   b. Have pupils compare the conditions of the section under study with others producing a like product.
   c. Great care should be taken not to give too many cities and details but rather fix thoroughly the physical features, the great routes of commerce, occupations of the people and large cities.
   d. A carefully prepared map with special study on Wisconsin.

435. Spelling.

1. Have oral spelling once per day from a speller.
2. Continue the oral spelling of difficult words from the reading lesson.
3. Drill on words frequently misspelled.

436. Writing.

1. Movement drills.
2. Commercial papers and other forms of composition.
3. Secure speed.
4. Use period for penmanship in movement drills, secure an easy fore arm movement, correct position and rapid legible writing.

437. Physiology and Hygiene.

1. Regular recitations from an elementary text. Complete the text, following the order there given.
2. Review. Enlarge upon, but follow order of topics suggested for fourth and fifth grades.

See Common School Manual, numbers 292–305 inclusive.

438. History.

Reading of and reports on books on history from the school library.

The outline in history for this grade is light on account of the heavy work in physiology.

Assign books or parts of books for pupils to read at home. Have reports both oral and written as often as convenient. These reports may be given in language class.

SEVENTH GRADE.

439. Literature.

Use several complete selections of standard literature which will give variety and at the same time interest pupils and introduce them to good literature. In these grades pupils should become familiar with much that has been written by American authors. Systematic use of books in the school library should be continued.

1. The historical, geographical, literary, and scientific allusions found in the reading matter should be explained to the extent necessary for an understanding and appreciation of the selection in which they occur.
2. The teacher should train pupils in such analysis of sentences as is necessary to secure the correct interpretation, and by questioning should test thoroughly the pupil's understanding of what is read.
3. Continued attention should be given to pronunciation, articulation, quality of tone, emphasis, and inflection in the pupil's reading in order to secure good expression.
4. Weekly recitation of memorized selections continued.

Consult and follow plan and method outlined for work in literature and literary reading in "Manual of the Free High Schools."

When necessary select reading matter less difficult than that indicated in the High School Manual.

440. Grammar.

1. Complete the first half of any good grammar.
2. Write descriptive and narrative compositions, paying particular attention to the choice of words and expressions.
3. Write letters of introduction, recommendation, application, formal invitations and replies, notes, bills, and receipts.

441. Arithmetic.

1. Briefly review essentials of sixth grade work.
2. Percentage.
    a. Nature of percentage.
    b. Percentage table of per cents and equivalent fractions.
    c. The three general problems in percentage.
        1. Finding any per cent of a number.
        2. Finding what per cent one number is of another.
        3. Finding the number when a given per cent of it is known.
    d. Applications of percentage not involving the element of time.
    1. Profit and loss.
        2. Commercial discount.
        3. Commission and brokerage, omitting problems in buying where sum includes investment and commission.
        4. Insurance.
        5. Taxes.
        6. Customs and duties.
3. Applications of percentage involving the element of time.
    a. Simple interest; one good method taught; interest tables made and their use explained; promissory notes studied, negotiable and non-negotiable, interest bearing and non-interest bearing; indorsements; protest.
4. Needed reviews.

442. Geography.

1. Advanced text-book in Geography.
2. Supplementary Geographical readers.
        a. Teach Europe.
        b. Complete the other grand divisions in a similar manner but do not give as extended work on them.

c. Teach comparative geography, especially of Europe and United States.

d. Pay much attention to the relative positions of countries using the southern line of Wisconsin, Milwaukee or some prominent natural feature of the United States with which to compare.

443. Spelling.

1. Oral spelling from speller and difficult words selected by the teacher from the work of the class.
2. Much *drill* on difficult words.
3. Teach four or five simple rules of spelling and have pupils illustrate the application of these rules to the words spelled.
4. Written spelling from speller once per day.

444. Writing.

1. Needed drill and practice for those not exempt.
   See outline for preceding grades.

445. History.

1. United States History to close of Revolutionary War. Follow text in use.
2. Review the foregoing under these heads:
   a. Discovery and early exploration of America, and causes which led different nations to plant colonies.
   b. Manner of life in different colonies, and the relations of colonists to the aboriginal races.
   c. Conflicting claims of European nations, and the final struggle for supremacy in North America.

d. The causes of the revolutionary war, and the growth of the desire for self-government.

e. Political history during and immediately following the Revolution; social disorder.

a. The Continental Congress, how constituted, weakness.

b. Declaration of Independence.

c. Articles of Confederation—origin, ratification, significance, principal features.

d. Treaty and Alliance with France—its military, political and social effects.

e. Conventions of 1786 and 1787.

f. Ratification of the Constitution.

g. Federal and Anti-Federal doctrines.

446. Drawing, Singing.

See Common School Manual.

EIGHTH GRADE.

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447. Literature.

(First half of year.)

See outline for seventh grade.

448. Elements of Agriculture.

(Second half of year.)

Use text book. See outline in Manual for Common Schools.

449. Grammar.

1. Last half of any good grammar.
2. Continue composition work in similar manner to the work in preceding grades.
3. Have pupils prepare outlines of subjects and write from them.
4. Continue the writing of letters of introduction, recommendation, etc., of the preceding grade.
5. Supplement the exercises in analysis and parsing by work selected from the reading lessons.

450. Arithmetic.

1. Briefly review essentials of seventh grade work in percentage.
2. Applications of percentage involving the element of time.
   a. Partial payments. Work solely by the United States rule. Do not make the work too difficult, but bring in cases of payments less than interest due.
   b. Bank discount. Limited to finding the bank discount on sums due at maturity.
   c. True present worth.
   d. Compound interest: nature and use of tables.
3. Practical measurements, including elements of longitude and time. Pupils should be required to measure yards, houses, rooms, etc., and to determine from the data thus obtained the area, cost of fencing, cost of shingling, cost of painting schoolhouse, cost of laying a new floor, cost of papering room, etc.
4. Square and cube root, ratio and proportion.
5. Continue writing of commercial papers and practical problems formulated by teacher and pupils, based on the foregoing.
6. Needed reviews.

451. Spelling.

1. Apply rules learned in previous grade to words in connection with other studies.
2. Have pupils keep a list of misspelled words and the teacher give drills upon this list.
3. Drill on difficult words from other studies.

452. Writing.

1. Needed drill and practice for those not exempt.
   See outline for preceding grades.

453. History.

First two terms.

1. Review articles of confederation, constitutional convention, ratification and constitution, federal and anti-federal doctrines.
2. Study constitutional period. Follow the text in use.
3. Review periods under these heads:
   a. Political parties: origin, principles, leaders, growth.
   b. Slavery; measures favoring extension; measures restricting it. Effect of each.
   c. Civil War: causes; leading campaigns; reconstruction.
   d. Territorial acquisitions; what? when? why?
   e. Industrial progress: inventions; improvement in travel, manufacturing, farming, building, housekeeping, education, etc.

454. Physiology.

Last term.

Review thoroughly and enlarge upon outline for sixth grade.

455. Constitution.

First two terms.

UNITED STATES CONSITUTION.

1. Preamble.

   Source of power recognized, purpose stated.

2. Legislative:
   a. Reasons for having two houses, membership, organization, limitations, special powers; method of lawmaking.
   b. Powers most used and most abused, most expansive.
   c. "General welfare" clause, elasticity.
   d. Impeachment.
3. Executive:
   a. Elections; what complications have arisen, and what remedies have been applied; conventions, national and state.
   b. Powers and duties; special attention to the origin, extent and limitations of the appointing power; Civil Service Commission.
4. Judicial:
   a. How judges are selected, term of office.
   b. Courts, kinds and relations, powers.
5. Sovereignty:
   a. Supreme law of the land; reserve powers, provisions relating to states, officials and individuals; control of territory and admission of states, guaranty of republican government, citizenship, suffrage.
6. Amendments:
   a. Process of making; what changes have been effected, especially by later amendments.

The general organization and work of the several executive departments; as the Postoffice, Weather Bureau, various offices in the Treasury Department; the President's Message.

WISCONSIN CONSTITUTION.

Follow the above specifications so far as applicable, with special attention to articles on Declaration of Rights, Executive, Administrative, and Legislative Departments; Education and Finance.

456. Orthoepy.

Last term.

1. A brief study of the organs of voice and organs of speech with special reference to the correct use of these organs in producing the elementary sounds.
2. Drill on diacritical marks and the elementary sounds which they represent. Pupils should be able to write readily, lists of diacritical marks with corresponding key-words; also tables of substitute vowel sounds, (different vowels marked so as to represent the same sound).
3. Teach the simple principles of syllabication and accent.
4. Teach and apply rules for marking vowels in accented syllables, also the most important rules for marking vowels in unaccented syllables. Considerable time should be spent in systematic analysis of words, applying rules referred to above. Use simple words until rules and their applications are thoroughly mastered; then drill upon troublesome words often mispronounced.

Note.—It is, of course, understood that teachers must give drill upon diacritical marks and the sounds which they represent, through the entire course in connection with reading, but experience has proved that a term at the end of the course can be well spent in rounding up this work. Too many graduates are found deficient in pronunciation.

Our public school system has differentiated itself into four distinct steps, each having its own course of study; the rural school, state graded school, three year course high school, and

four year course high school. In general the three year high school stage seems the least satisfactory in the development of the system, notwithstanding the fact that there are some strong three year high schools. This form of school was originally intended as a stepping stone to a complete four year school. In Minnesota it has entirely disappeared. Much of the weakness has been due to lack of teaching force. In many of these schools the high school boards are this year for the first time, providing assistants, and no doubt a large percentage will be found to be in a much improved condition. Nevertheless the three year school may be safely counted a temporary stage. It seems a wise policy to caution graded schools against hurrying into the three year high school stage. A strong graded school can do more efficient work than a poor three year high school. Before attempting to organize a high school, it ought to be reasonably certain that local conditions will, in a very short time, assure a four year course with an assistant principal. The following year's work is designed for state graded schools that find it necessary to do work beyond the graded school proper. The consent of the state department should always be obtained before attempting to do any of this work. In the revising of the course of study algebra and physical geography have been taken out of the eighth grade and history and constitution have been given more time. Arithmetic, orthoepy, and physiology have been put into the eighth year.

NINTH GRADE.

457. *First Term.*

Algebra.
Physical Geography.
Grammar and Composition.
Literary Reading.

458. *Second Term.*

Algebra.
Physical Geography.
Grammar and Composition.
Literary Reading.

459. *Third Term.*

Algebra.
Elements of Agriculture.
Grammar and Composition.
Literary Reading.

NOTE.—The ninth grade work corresponds with the first year of high school work. For suggestions see High School Manual.

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